



# TRANSDISCIPLINARITY IN SCIENCE AND RELIGION

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Basarab Nicolescu and Magda Stavinschi

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# The Ontological Argument from Anselm to Gödel. A Fusion of Horizons

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*No quería componer otro Quijote  
— lo cual es fácil — sino el Quijote.*

PIERRE MENARD, AUTOR DEL QUIJOTE

## Introduction

The present paper is an enlarged version of the conference delivered by five members of the Ploiești Group at the Third National Meeting of the Association for the Dialogue Between Science and Theology in Romania (A.D.S.T.R.), held at the Sâmbăta-de-Sus monastery. The aim of the reported research was to apply transdisciplinary methods to an old, but still living issue: the ontological argument.

As Basarab Nicolescu sometime said: “Transdisciplinary hermeneutics is a recreation (the act of creating again)”. It is a difficult task, but one can, however, try. We have adopted a mathematics-like style which seems to better suit our purposes. Our thanks go to Mr. Nicolescu for introducing us to the fascinating field of transdisciplinarity and for his constant support during the preparation of the conference.

## 0. Preliminaries

In a public lecture given in 1951, J.J. Smart [17] said: “This lecture is not to discuss whether God exists. It is to discuss the reasons that philoso-

phers have given for saying that God exists. That is, to discuss certain arguments." Our objective is obviously the same, provided that to *philosophers* one adds *mathematicians* and *transdisciplinary people* and to *arguments* one adds *proofs*.

Of course, there are differences between arguments (the reason or reasons put forward in favour or against something) and (mathematical) proofs. Arguments use natural languages (that are naturally ambiguous), while proofs use (at least theoretically) formal (mathematical) languages; arguments may be personal, while proofs are impersonal etc. In this paper, a transition from arguments to proofs is sketched, with the only difference that the formal proof is not entirely formal, but a kind of mixture between formal and natural language comments.

Of course, if an argument fails, it does not follow that the statement (asking for an argument) is not true.

Let us now remind some definitions concerning transdisciplinary hermeneutics:

### 0.1. Definition

The *horizon* is the range of vision which includes everything that can be seen from a particular standpoint (Gadamer).

### 0.2. Definition

A *fusion of horizons* is a dynamic, self-transcendent process which consists in creating a new horizon from two (or more) different horizons by observing their individuality.

We can conceive a standpoint as a "moving frame" (beliefs, desires etc.) of a changeable "individual". Inside this moving frame, horizons are created. Speaking of horizons, we do not restrain ourselves to limits or frontiers, but we accept that frontiers are an opportunity to go beyond. Learn and never stop learning to learn! We consider the notions of Level of Reality, Object, Subject, Included Middle, Hidden Third as known (see, for example, Basarab Nicolescu [12]). In a certain sense, we consider the fusion of horizons as a (result) of the included middle action and we hope to develop on this intuition in some future work.

In the last section, we need a (formal) modal logic. It is not possible to give an account of the subject in this paper. A very readable introduction to modal logic is [9]. Let us only mention that an intuitive approach to the notions of necessity and possibility is the semantic of "possible worlds" (of course, if the notion of a possible world is, at least intuitively, apprehended). Let us say that, in the system of a modal logic considered in the last section, *necessary* means "true in all possible worlds" and *possible* means "true in at least one possible world". As to the notion of a possible

world, let us quote from [14]: “A world corresponds to a cosmos by having as members propositions true of that cosmos. A proposition is true in a world if it is a member of it. An individual exists in a world if a proposition in that world says that the individual exists.”

## 1. St. Anselm

### 1.1. Context

- i) *Psalm 14*, 1: “The fool hath said in his heart, There is no God” (King James’ Bible);
  - ii) St. Anselm: “Truly there is a God, although the fool has said in his heart, There is no God” (*Proslogion*, p. 2).
- This is the question (debate).

### 1.2. Anselm’s epistemic attitude

- i) “For I do not seek to understand that I may believe, but I believe in order to understand. For this also I believe — that unless I believed, I should not understand” (*Proslogion*, p. 1);
- ii) St. Anselm speaks to God by calling Him “You”. We can find, here, some kind of dialogical position of St. Anselm with respect to God, which will be followed by a dialogical action of the pair (St. Anselm, Fool) in front of the accepted definition and its logical conclusions.

### 1.3. Definition (of God)

A being than which nothing greater can be conceived (*id quo maius cogitari nequit* — *Proslogion*, p. 2).

### 1.4. Remarks

- i) “...for at present we are only agreed about the name, but of the thing to which we both apply the name possibly you have one notion and I another; whereas we ought always to come to an understanding about the thing itself in terms of a definition, and not merely about the name minus the definition” (Plato, *Sophist*, 218c);
- ii) The definition is based on “maximality” (in the sense of relationships of order). To be more specific, if  $(X, \leq)$  is a partially ordered set, then an element  $a \in X$  is maximal if from  $a \leq x$  we get that  $a = x$ .
- iii) Maximality does not imply uniqueness.

- iv) It would be interesting to discuss what the “concrete” meaning of *greater* is. We shall find some more about this in Descartes’ version of the argument and in Gödel’s notion of a “positive predicate”. An interesting discussion can be also found in Baumgarten [2]. In any case, it is not something like the “set of all sets”;
- v) “A being” is not to taken for already existing; it is better to take it for “that”;
- vi) Is it God or the idea of God we are talking about? We think we are talking about both;
- vii) “Can be” could be thought as a modality.

### 1.5. *Precondition* (of the “argument”)

“[The Fool] understands what he hears, and what he understands is in his understanding; although, he does not understand it to exist” (*Proslogion*, p. 2).

### 1.6. *Remarks*

- i) Thus, the fool accepts both the dialogue and the definition;
- ii) Every dialogue must begin by putting something in common;
- iii) One can suppose that *is in his understanding* means “possible” or not contradictory.

### 1.7. *First argument*

- i) Method: by contradiction (or *reductio ad absurdum*);
- ii) “Assuredly that, than which nothing greater can be conceived, cannot exist in the understanding alone. For suppose it exists in the understanding alone: then it can be conceived to exist in reality; which is greater” (*Proslogion*, p. 2).

### 1.8. *Second Argument*

“God cannot be conceived not to exist. God is that, than which nothing greater can be conceived. That which can be conceived not to exist is not God. And it assuredly exists so truly, that it cannot be conceived not to exist. For it is possible to conceive of a being which cannot be conceived not to exist; and this is greater than one which can be conceived not to exist. Hence, if that, than which nothing greater can be conceived, can be conceived not to exist, then it is not that, than which nothing greater can be conceived. But this is an irreconcilable contradiction. There is, then, so truly a being than which nothing greater can be conceived to exist, that it cannot even be conceived not to exist; and this being you are, O Lord, our God.” (*Proslogion*, p. 3).

### 1.9. *Remarks*

- i) The modal character of the argument is easily seen. One could interpret the second argument as an argument for the *necessary existence* of God. We shall turn back to this, further on.
- ii) The splitting into definition and argument of what is, in general, known as argument adapts better to the content of the paper.

**1.10. *The Object*** of the argument seems to be the pair (God, World) where by *world* we mean the world we live in. To this Object, two levels of reality correspond: the divine and the common ones. We think one could assimilate, at least in this debate, the divine to a level of reality, and, also, to a level of possibility.

**1.11. *The Subject*** is also a pair (Anselm, Fool), together with the corresponding levels of understanding and interpretation. The disciplines involved are theology and classical logic. But there is also another (collective) Subject, the authors of this paper, faced with an historical horizon acting on their own horizons. That is why a bit of modern mathematics is introduced and, unfortunately maybe, a lot of misunderstanding. Mathematics will also be needed in the final part of the paper.

### 1.12. *Fusion*

We can ask ourselves if the (imaginary) dialogue between Anselm and the “rational” Fool resolves itself into a fusion of horizons. At any rate, it seems to be a *shared understanding*. If we suppose that both partners consider the argument convincing and the dialogue stops then, we could say that we have a fusion of horizons. It is true that this fusion is of a particular type: the range of vision (about God’s existence) of the Fool will be included in Anselm’s range. Using a mathematical metaphor, one can think the fusion of horizons as a symmetrical action between two or more levels of information, resulting in a new distribution of information on the levels and, sometimes, in the creation of new levels.

## 2. The First Refutation: Gaunilon

The first doubts about Anselm’s ontological argument were raised by Gaunilo(n) [7]:

### 2.1. *The “island” argument*

“For example: it is said that somewhere in the ocean is an island, which, because of the difficulty, or rather the impossibility, of discovering

what does not exist, is called 'the lost island'. And they say that this island has an inestimable wealth of all manner of riches and delicacies in greater abundance than is told of the Islands of the Blest; and that having no owner or inhabitant, it is more excellent than all other countries, which are inhabited by mankind, in the abundance with which it is stored. Now, if some one should tell me that there is such an island, I should easily understand his words, in which there is no difficulty. But suppose that he went on to say, as if by a logical inference: 'You can no longer doubt that this island which is more excellent than all lands exists somewhere, since you have no doubt that it is in your understanding. And since it is more excellent not to be in the understanding alone, but to exist both in the understanding and in reality, for this reason it must exist. For if it does not exist, any land which really exists will be more excellent than it; and so the island already understood by you to be more excellent will not be more excellent.' If a man should try to prove to me by such reasoning that this island truly exists and that its existence should no longer be doubted, either I should believe that he was jesting, or I know not which I ought to regard as the greater fool: myself, supposing that I should allow this proof; or him, if he should suppose that he had established with any certainty the existence of this island. For he ought to show first that the hypothetical excellence of this island exists as a real and indubitable fact, and in no wise as any unreal object, or one whose existence is uncertain, in my understanding."

## 2.2. Remarks

- i) We have only quoted the most famous part of Gaunilon's refutation for it is a very good passing from the "global" to the "local" and, changing the point of view, from "realism" to "empiricism". We call *localization* the idea to apply maximality arguments to almost everything. Maybe this term, borrowed from mathematics, is not the best one, but the idea is of a concentration from the whole to small "neighbourhoods" of the points. The problem is that a concept like Gaunilon's "island" does not satisfy the precondition 1.5 of the previous section: it seems that, no matter how excellent an island could be, we can imagine a better one. For a first intuition, think of the natural numbers: no matter which natural number you take, there exists (you can imagine) a greater number. In conclusion, you will never accept to speak of a number "than which no greater one can be conceived".
- ii) In [11], Millgram considers the "greatest conceivable ontological argument". Even if the comparison between arguments is not explicitly stated, one can accept that an argument that works is better than one which does not work. So...

### 2.3. *Fusion*

St. Anselm did answer Gaunilon's refutation. Instead of talking these matters over, let us consider the almost friendly dialogue between St. Anselm and Gaunilon to be another example of a shared understanding from some misunderstandings.

## 3. Whether the Gift of Knowledge Is about God

We now continue by asking about the necessity of searching for an argument of God's existence in the presence of (Christian) faith. It is not about the epistemic attitude of the first paragraph, but simply about the opinion inside the Church in asking such a question.

The title of this paragraph is, of course, a slight alteration of a title used by Thomas Aquinas (*Summa Theologiae*, article 2, *secunda secundae partis*, Q. 9). We shall give some examples of attitudes (for or against) concerning our question. We do not claim to have found the best ones.

### 3.1. *Example*

"Any concept formed for attempting to reach and surround the divine nature does not succeed but to create an idol of God, without revealing Him" (Gregory of Nyssa, *Life of Moses*).

### 3.2. *Example*

"God is the Absolute Being, the Principle of all principles. He has revealed Himself to us as 'I am', as Person-Hypostasis. Now we know Him through the Son... And this living knowledge has delivered us from all the absurdity of intellectual aspiring to some Supra-Personal Absolute, to a Pure Being transcending all that is; in fact, to non-being" (Archimandrite Sophrony Sakharov, *We shall see Him as He is*).

### 3.3. *Example*

"Because that which may be known of God is manifest in them; for God has shown it unto them" (Paul, *I Romans*, 19).

### 3.4. *Comments*

- i) Let us remind that the distance, in time, from the first example to the second is of about 1,600 years and that, of course, the third example is the oldest one;
- ii) The question whether St. Anselm's "definition" created an idol seems quite interesting. At first sight, one could take it for a con-

cept of the type incriminated by Gregory of Nyssa and maybe it really is. But it can also be conceived as a kind of very abstract name, needed to start the dialogue, something like an initial condition for a process of “adaptive learning”. As a matter of fact, the first sentence of the second example seems as abstract as Anselm’s definition (but not a premise for a dialogue) and we suppose nobody takes it for an idol;

- iii) On the other hand, the danger presented in the last sentence of the second example could be real. But this would need a long discussion that we postpone for a future research. There could be a matter of types and names (remember also that the universe of the Zermelo-Fraenkel set theory is reduced only to sets and membership, but a set does not belong to itself);
- iv) On the contrary, if we look at the third example, why not hope that the possibility of an argument is *inside* us? Another way of considering the problem could be a weak version of Pascal’s wager: Is there anything to lose if we try? As mentioned in the introduction, the failure of a proof does not mean that the statement is false;
- v) There is another possibly legitimate question: if St. Anselm’s argument is successful, is the proved existing God the God one expects Him to be? In terms of axiomatic theories, this could remind one of the problem of “strange models”.

### 3.5. Remarks

Going back to St. Thomas, we find: “Nor is it necessary for something greater than God to be conceivable, if His non-existence is conceivable. For the possibility of conceiving Him not to exist does not arise from the imperfection or uncertainty of His Being, since His Being is of itself most manifest, but from the infirmity of our understanding, which cannot discern Him as He is of Himself, but only by the effects He produces; and so it is brought by reasoning to the knowledge of Him. As it is self-evident to us that the whole is greater than its parts, so the existence of God is most self-evident to them that see the divine essence, inasmuch as His essence is His existence. But because we cannot see His essence, we are brought to the knowledge of His existence not by what He is in Himself, but by the effects which He works” (*Summa contra gentiles*, 1, chap. 11).

Thus, the problem seems to concern the “infirmity of our understanding”, which is able only to capture the effects alone and go back to what has produced them. We shall come back later to the relationship between essence and existence.

### 3.6. *Levels and types*

Without going into details, a possible connection may be worth mentioning between certain levels of reality and certain type theories. At least at first sight, they seem to “fibre” (another mathematical metaphor) the reality (for example, of the Subject) in a fundamental way.

Finally, let us quote from the Encyclical letter *Fides et Ratio* of Pope John Paul II (Preamble): “Faith and reason are like two wings on which the human spirit rises to the contemplation of truth; and God has placed in the human heart a desire to know the truth — in a word, to know himself — so that, by knowing and loving God, men and women may also come to the fullness of truth about themselves (cf. *Exodus*, 33, 18; *Psalms*, 27, 8-9; 63, 2-3; *John*, 14, 8; *I John*, 3, 2)” [John Paul II, *Faith and reason*, Encyclical letter, Libreria Editrice Vaticana, 1998].

## 4. Descartes

We shall give a short account of Descartes’ version of the ontological argument, being interested, especially, in the idea of “infinite”. Because the epistemic attitude of Descartes is well-known, let us begin with his “definition” of God.

### 4.1. *Definition*

“By the name God, I understand a substance infinite [eternal, immutable], independent, all-knowing, all-powerful, by which I myself, and every other thing that exists, if any such there be, were created” ([6], III, 22).

### 4.2. *The Argument*

“But these properties are so great and excellent, that the more attentively I consider them, the less I feel persuaded that the idea I have of them owes its origin to myself alone. And thus it is absolutely necessary to conclude, from all that I have before said, that God exists” (*ibidem*).

### 4.3. *Remarks*

- i) Thus, the idea seems to be that Descartes finds in “himself” the idea of God, which idea is impossible to be created by a finite “substance” like him, so it was “implemented” by someone at least as perfect as the definition asks. Therefore, God exists;
- ii) In the definition above, there are hints about what St. Anselm’s *greater* could mean. This is his idea of “all perfections”. We will meet again this idea below, in Gödel’s proof;

- iii) If we consider the idea of the “infinite”, we find a very interesting point of view: “...I clearly perceive that there is more reality in the infinite substance than in the finite, and therefore that in some way I possess the perception (notion) of the infinite before that of the finite...” ([6], III, 24).

We are tempted to say that the notions of finite and infinite come together, but let us analyse, for a moment, the last quoted remark from Descartes, in the light of the modern set theory.

Modern mathematics works (at least, since Cantor and Dedekind) with a precise notion of the “infinite”. First of all, the predicate *infinite* applies to sets (as does, also, the predicate *finite*).

#### 4.4. Definition

Two sets  $X$  and  $Y$  are equivalent if there exists a bijective function from  $X$  onto  $Y$ .

#### 4.5. Definition

A set  $X$  is called infinite if it is equivalent to a proper subset of itself (proper subset means included, but different).

#### 4.6. Example

Let  $N$  be the set of natural numbers and  $P$  the set of even numbers. Of course,  $P$  is a proper subset of  $N$  (there are also odd numbers). The rule  $n \mapsto 2n$  is a bijection from  $N$  onto  $P$ ; so  $N$  is infinite.

#### 4.7. Definition

A set is finite if it is not infinite.

#### 4.8. Remarks

- i) This is, in a certain sense, a cartesian program. In only two steps, we reach the notion of an infinite set, which is prior to the notion of a finite set;
- ii) The old confusion between *infinite* and *unbounded* is completely avoided. Boundness (which is also a property of sets) is a matter of order and topology. There exist bounded infinite sets (like the interval  $[0, 1]$  of real numbers). Of course, only if you admit actual infinities (but what kind of infinity — an actual or a potential one — is Descartes speaking about?);
- iii) Lucian Blaga found [in his *Dogmatic Eon*] some resemblance (at least, at a structural level) between Philo of Alexandria’s theory

about *emanation without diminishing* and the notion of an infinite set we have just described. In any case, it is important to notice that, if we remove the odd numbers from the set of naturals, then we get a set with the same *cardinal* (equivalent sets are said to have the same cardinal), but a definitely different set. Anyhow, as a synonym of *cardinal* is *power*, one can continue to wonder, taking into account that: “In the Transitive Emanation theory, all beings issue from the *Divine Substance* much in the same way as new fruits appear on the parent tree without changing its substance and without diminishing its productive power” (*The Catholic Encyclopaedia*).

## 5. Kant

The most famous refutation of Anselm’s ontological argument is due to Kant. Let us briefly remind it:

### 5.1. Thesis

“*Being* is evidently not a real predicate or a concept of something that can be added to the concept of a thing. It is merely the admission of a thing and of a certain determination in it. Logically, it is merely the copula of a judgement” (Kant, *Critique of Pure Reason*, II, chap. III).

### 5.2. Example

“The real does not contain more than the possible. A hundred real dollars do not contain a penny more than a hundred possible dollars” (*ib.*).

### 5.3. Remarks

i) In fact, one could feel strange by asking a question like: Does *this* have the property of existence? But we can also wonder whether there are “round squares”. Therefore, the issue is not about the extension of a predicate, but its being a predicate. And what is a predicate? Of course, we are interested in “predicate” as applied in logic. One could find, for example:

a) A *predicate* is a verb phrase template that describes a property of objects or a relationship among objects represented by the variables (*Free Online Dictionary*);

b) A *predicate* is that which is affirmed or denied concerning the subject of a proposition (*Encyclopaedia Britannica*).

We do not know if the thesis is very illuminating and this is not the place for a deeper analysis of the notion (provided we could perform it). What is important is the connection between predicates and properties: to speak in transdisciplinary terms, properties belong to Objects, while predicates are in the Subject. A very interesting problem (also an old one) concerns the correspondence between the properties and the predicates. Do properties corresponding to predicates always exist, for example? In [8], the case of the predicate *red* is considered. A little different aspect of the same problem can be found in the idea of “degree of membership”, a basic concept in the fuzzy sets theory.

- ii) If we consider the extension of predicates (in classical bivalent logic), there is a concept of existence, essentially due to Frege: existence is assimilated with non-empty extension. Without going into more details, let us remark that, in this setting, existence is a predicate of predicates, a second-order predicate. This is worth mentioning because we have already met the idea of perfection above and we will meet this again, as an important step of Gödel’s proof.

## 6. Gödel

“Let us not make arbitrary conjectures about the greatest matters.”  
(Heraclitus)

We think that some attempt at giving an intuitive insight of what follows could be useful. To be more specific, the term *intuitive* is used with respect to an expected, more intuitive mathematics (those of “sets”) compared with formal logic. In other words, we try to work, from the very beginning, in an “extensional” manner.

### 6.1. Definition

If  $M$  is a set and  $P$  is a predicate, then the *extension of  $P$* , with respect to  $M$ , is the subset of  $M$  consisting of the elements satisfying  $P$ .

### 6.2. Remarks

- i) If one thinks about a predicate as reflecting a property, then the extension consists of the objects possessing that property.
- ii) The fact that we take the extension with respect to a set is a consequence of some well-known paradoxes in the naïve set theory which appear if we do not.
- iii) If the set  $M$  is fixed, then one can think about a predicate in terms of its extension.

### 6.3. Notation

For a predicate  $P$  and an “object”  $x$ , we will write  $Px$  for the proposition “ $x$  satisfies  $P$ ” (in terms of “properties”,  $Px$  denotes the proposition “ $x$  has the property represented by  $P$ ”). We will also speak about “individuals”, instead of objects.

As mentioned above (see the Preliminaries), in order to state and prove Gödel’s theorem, modal logic is needed. It is not possible to give here an account about the modal predicate logic (there are many good introductions into the subject); we will try a mixture of “common sense” logic and formal statements, which we hope will give a general idea of the theorem.

### 6.4. Quantifiers

$(x)Px$  means that, “for every  $x$ ,  $Px$ ” and  $(\exists x)Px$  “there exists  $x$ ,  $Px$ ” (a *universal* and an *existential* quantifier, respectively).

### 6.5. Possible worlds

One could imagine, loosely speaking, a world as being a set of objects having some properties; the same predicate having, in general, different extensions in different worlds. A given proposition could be true in one world and false in another world etc.

### 6.6. Necessity

If  $p$  is a proposition then  $\Box p$  denotes the proposition “it is necessary that  $p$ ”. The proposition  $\Box p$  is true if  $p$  is true in all the worlds.

### 6.7. Possibility

If  $p$  is a proposition then  $\Diamond p$  denotes the proposition “it is possible that  $p$ ”. The proposition  $\Diamond p$  is true if  $p$  is true in at least one world.

### 6.8. Remark

The modal logic having the semantic just described is known as the system  $S_5$ .

After these maybe too concise definitions, we can pass to the context of Gödel’s theorem. We shall reduce ourselves to the main steps.

### 6.9. The algebra of predicates

It is supposed that the set of all predicates has an algebraic structure as follows:

### 6.10. Definition

Define the relation  $\Rightarrow$  between predicates by:  $P \Rightarrow Q$  if and only if  $(\forall x)(Px \rightarrow Qx)$ .

### 6.11. Remarks

- i) The condition in the definition means that, in all possible worlds, if  $x$  satisfies  $P$ , then  $x$  also satisfies  $Q$  ( $\rightarrow$  is the “implication”). In terms of extensions,  $P \Rightarrow Q$  if and only if, for every world, the extension of  $P$  (with respect to that world) is contained in the extension of  $Q$ ;
- ii) A technical name for the relation  $\Rightarrow$  is *entailment*.

### 6.12. Definition

We write  $P \Leftrightarrow Q$  if and only if  $P \Rightarrow Q$  and  $Q \Rightarrow P$ . In this case, we say that  $P$  and  $Q$  are *equivalent*.

### 6.13. Remarks

- i)  $P$  is equivalent to  $Q$  if, in every world, their extensions coincide;
- ii) The relationship  $\Leftrightarrow$  is an equivalence relation (*i.e.*, it is reflexive, symmetrical, and transitive). It is well-known that an equivalence relationship on a set determines a splitting of this set into equivalence classes. This way, the set of the predicates is split into equivalence classes which are determined by the corresponding extensions in the possible worlds. We will be interested mainly in this equivalence classes, and this is why one can think only in terms of extensions: predicates are assimilated with families of sets indexed by possible worlds. As usual, working with equivalence classes of predicates is working with predicates, always taking care to prove that what is obtained is independent of the chosen predicates up to equivalence. In what follows, we will not bother with these kind of things, but it is important to mention them once and for all.

### 6.14. Proposition

In the set of the (equivalence classes of) predicates,  $\Rightarrow$  is an *order relationship* (reflexive, anti-symmetrical, and transitive).

Proof: Easy using the basic (intuitive) properties of implication.

### 6.15. Basic assumption

The set of the predicates together with the above order relation is a *complete lattice*.

This means that every set of (or classes of) predicates has the least upper bound (and the greatest lower bound). In particular, we have a least element  $\Phi$  and a greatest element  $\Omega$ :  $\Phi \Rightarrow P$  and  $P \Rightarrow \Omega$  for every  $P$ . The usual notation for the greatest lower bound of a set  $C$  is  $\wedge X$  and for the least upper bound is  $\vee X$ . At the level of extensions, the extensions of the greatest lower bound corresponds to the intersection (in every world) of the extensions, while for the least upper bound one takes unions. For example, if  $P$  and  $Q$  are predicates, then  $(P \wedge Q)x$  if and only if  $Px$  and  $Qx$ .

### 6.16. Exemplified

A predicate  $P$  is *possibly exemplified* if  $\diamond(\exists x)Px$  holds.

### 6.17. Consistence

A predicate is *consistent* if  $P \Rightarrow \Omega$  does not hold.

The intuition behind the last two definitions is not difficult to obtain: *possibly exemplified* means that in at least one possible world there exists an individual satisfying the predicate, while *consistent* means “not implying a contradiction”, because the extension of  $\Phi$  at every world is empty.

### 6.18. Theorem

$P$  is possibly exemplified if and only if it is consistent.

Proof: Without going into details, we think that the theorem is not difficult to understand when using, for example, the extensional point of view.

### 6.19. Remark

If we remember St. Anselm’s words: “And what he understands is in his understanding”, we could think about a consistent definition of God and also about its possible exemplification.

Now we come to an important step in the statement (and proof) of Gödel’s theorem, namely the idea of:

### 6.20. Positive predicates

There exists, by definition, a *Poz* set of predicates, called positive predicates, satisfying the following conditions:

- i) If  $P \in \text{Poz}$  and  $P \Rightarrow Q$ , then  $Q \in \text{Poz}$ ;
- ii) If  $P \in \text{Poz}$  for every  $P \in X$ , then  $\wedge X \in \text{Poz}$ ;
- iii)  $P \in \text{Poz}$  if and only if  $\neg P \notin \text{Poz}$ .

The third and the fourth condition ask for some comment. For a predicate  $P$ , we suppose that a predicate whose extension, in every world, is the complement of the extension of  $P$  exists and we call it  $\neg P$ .

It follows that  $Poz$  is not empty and, except in trivial cases, that not all predicates are positive (in particular  $\Phi$  is not positive).

### 6.21. Remarks

- i) Being positive it is not a purely logical intuition. One can think about the idea of a “perfection” of some kind; for example, a moral quality etc. — remember, say, section 4.1. As Basarab Nicolescu stated, the concept of “positivity” brings the Subject into the matter.
- ii) Condition iii) is a condition of “maximality”. In technical terms, together with the other conditions, it makes  $Poz$  an ultra-filter. It will be essentially used in the proof.

### 6.22. Proposition

If  $P$  is positive, then it is possibly exemplified.

Proof: By contradiction, using the fact that  $\Phi$  is not positive.

### 6.23. Definition

The *essence* of  $x$  is  $E(x) = \wedge C$ , where  $X$  is the set of all the predicates satisfied by  $x$ . We will admit the Leibniz “law”: if  $E(x) \Leftrightarrow E(y)$  then  $x = y$  (identity).

### 6.24. Remarks

Let  $X, Y$  be such that  $Poz \subseteq X \cap Y$  and let  $x$  have the essence  $\wedge C$  and  $y$  have the essence  $\wedge Y$ . Then  $x = y$ . In fact, suppose by contradiction that  $x \neq y$ . From Leibniz’s law, one gets that, say, there is a predicate  $P$  such that  $Px$  is true and  $Py$  is false. It follows that  $P$  is not positive. By using iii) of 6.19, one gets that  $\neg P$  is positive. But, in this case,  $x$  satisfies both  $P$  and  $\neg P$ , which is a contradiction. In particular, if  $x$  has the essence  $\wedge Poz$ , then it will be unique with this property. This result has to be compared with 1.4., iii).

### 6.25. Definition

Let  $x$  and  $X$  be as in 6.22. Define *necessary existence* as a (global with respect to all possible worlds) predicate:  $NEx$  means  $\nabla (\exists y Xy)$ , where  $Xy$  is a shortening for “ $y$  satisfies all the predicates belonging to  $X$ ”.

### 6.26. Assumption

$EN$  is positive.

### 6.27. Definition

Define  $G = \wedge Poz$ .

### 6.28. Remarks

$G$  is, intuitively, the essence of God, so could it be called *Godness*? We are now in the position to state and prove Gödel's theorem.

### 6.29. Theorem

$\top(\exists xGx)$ .

Proof: As  $G$  and  $NE$  are positive, so is  $G \wedge NE$ ; by 6.22, we get that  $\diamond(\exists x)[Gx \wedge NEx]$ . By the very definition of  $NE$  we have  $\diamond(\exists x)[Gx \wedge \top(\exists yGy)]$ .

It follows easily that  $\diamond\top(\exists yGy)$ . In order to conclude the proof, we need one basic property of the  $S_5$  system of modal logic, namely:  $\diamond\top p \rightarrow \top p$  for every proposition  $p$ . We finally get  $\top(\exists yGy)$ .

### 6.30. Remarks

The property of  $S_5$  used in the previous proof can be easily deduce from the semantic of possible worlds. More details and a presentation of the systems of modal logic can be found in [9].

## 7. Epilogue

After the conference mentioned above (in the introduction), we were asked what all these things had to do with transdisciplinarity; for example, how were the Subject and the Object identified and, even if one had managed to identify them, where was their interaction, because, as it seemed, if some certain *between and across* the disciplines could be detected, the *beyond* all disciplines was not easy to grasp. Good questions. To tell the truth, we expected some other "difficult" questions or attitudes: a cold skepticism (why an attempt to prove such things?), a critical discussion of the hypotheses in Gödel's proof (as a matter of fact, Gödel never published his proof), a natural and amusing impulse for proving a lot of existence statements using Anselm's method (for example, what about the existence of a "greatest conceivable ontological argument"), or some suspicion with respect to the "game" of modal logic playing with possibility, necessity, and possible worlds in order to reach existence (even necessary existence) etc. The fact that we expected such questions did not mean that we could have answered them. This kind of questions could represent a partial answer to the question about transdisciplinarity and to the problem of "beyond". A lot of horizons are present in this subject, the fusion of which seems to be of interest. There is a Subject mixing, for example, logic and ethics and also a Subject going beyond this mixture.

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# Queen of the Sciences? Theology and Natural Knowledge in St. Gregory Palamas' *One Hundred and Fifty Chapters*

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As a Church father, mystical theologian, spiritual guide, and incisive polemicist against the non-ecclesial epistemology of many among the 14<sup>th</sup> century Byzantine intellectuals, St. Gregory Palamas (ca. 1296-1359) exhibits an impressive command of the “profane arts” in one of his later writings.<sup>1</sup> The work in question, *One Hundred and Fifty Chapters: Natural and Theological, Ethical and Practical, and on Purification from the Barlaamite Defilement*<sup>2</sup>, shows at least in its first section (*Chapters 1-29*) the author's balanced understanding of — and critical appreciation for — the natural sciences, together with his genuine aptitude for logic and scientific reasoning. It also demonstrates Palamas' impressive discernment, which skilfully traces the specific capabilities and possible points of interaction between theology and science without, however, mixing up the domains.

This article argues that whilst Palamas is similar to many other medieval scholars in his true interest and expertise in scientific matters,

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1. Concerning the date of publication (at some time between the years 1349 and 1350), see: Sinkewicz [1988], pp. 49-54; Chrestou [1994], pp. 8, 28, 30; Papademetriou [2004], p. 18; Sherard & Ware [1995], pp. 290-291.

2. This is my rendition of the original title. However, the English version of the *Chapters* referred to throughout this article is the one published in *The Philokalia*, vol. 4 (1995), where the title reads: *Topics of Natural and Theological Science and on the Moral and Ascetic Life: One Hundred and Fifty Texts* (referred to from now on as *Topics*). For all references to the text, I have compared this English version with the original edited by P. Chrestou in *Γρηγορίου Παλαμά, Ἀπάντα τὰ Ἔργα*, vol. 8; whenever necessary, I made the appropriate changes. I have also consulted the original text and translation offered by Sinkewicz [1988], pp. 82-113.

he nevertheless distinguishes himself by abandoning the classical scheme that considered theology as queen of all sciences, on the one hand, and science and philosophy as handmaidens of theology, on the other hand. At the origin of this shift lies more than likely St. Gregory's authentic Christian mindset, which marks the inherent differences between worldly knowledge (as represented by science and philosophy) and the wisdom from above (as revealed to the saints and witnessed by the Scriptures); from the outset, it should be noted that this approach is consistent with the transdisciplinary methodology. On the whole, and considering the difficulties experienced by modern scholars in classifying this compilation, the *Chapters* add new dimensions to the already complex portrait of their author.

This essay will explore the literary context of the *Chapters*, sketching the Byzantine evolution of the genre to which they belong — as a prerequisite for a proper understanding of the nature of the work — and mostly its anthological character. It will proceed to outline the structure of the book, referring mainly to its first section, which is of immediate interest to the topic. The scriptural background of Palamas' thinking will be subsequently analysed, together with his views on the various competencies of theology and the natural sciences. Finally, the essay emphasizes the relevance of St. Gregory's approach for contemporary conversations on science and theology.

### The Literary Genre of "Chapters": A Brief History

The title of the work in question, *Chapters*, is indicative of both a literary genre widely known throughout the monastic milieu and the customary patristic preference for a non-systemic approach towards various topics. The tradition of the chapters (Κεφάλαια) was established in Egypt by the erudite ascetic Evagrius Ponticus (4<sup>th</sup> century A.D.)<sup>3</sup>, and its original purpose was to assist the daily monastic practice of mystical contemplation. As such, the chapters had constituted from the outset a source of insight and inspiration, aiming at spiritual formation rather than serving doctrinal purposes. In spite of a series of successive transformations occurring with the genre, this formative dimension survived throughout the Byzantine era primarily through liturgical hymnography, such as, for example, St. Andrew of Crete's *Great Canon*<sup>4</sup>, whose stanzas in fact represent the chapters arranged in the form of hymnographical verse.

3. Cf. Chrestou [1994], p. 7; Louth [2004], pp. 377-378.

4. See Meyendorff [2001], pp. 37-38; Costache [2008 (b)], p. 53.

Concerning their morphological and functional development, it is interesting to note that from the initial almost aphoristic sentences dealing with spiritual topics, the *Κεφάλαια* evolved into a polemical tool and a way to disseminate concise information that was very similar to Clement the Alexandrian's *Miscellanies*. Closely related to this change is the fact that, in their historical pilgrimage, the chapters began to progressively incorporate material from a different source, the so-called "chains" or anthologies of thematic citations from the holy fathers.<sup>5</sup> This appropriation explains why the later Byzantine chapters, albeit with certain exceptions, addressed mostly doctrinal topics, in time their original character becoming secondary. In line with these developments, and despite their title suggesting themes that were related to the spiritual journey, St. Gregory's *Chapters* seem to have been devised, above all, as a summary of the faith and a refutation of his opponents' epistemology. Nevertheless, given that this work almost undoubtedly appears to be a compilation, as suggested by the title and its tripartite structure (see below), it is difficult to pinpoint the common denominator for all chapters. Despite this difficulty, it is abundantly clear that within this work the above mentioned monastic and mystical features are still visible as, for example, in the reiteration of the tradition of the saints as constituting the ultimate spiritual authority.<sup>6</sup>

Before proceeding to analyse the structure of the work, a misunderstanding maintained by a recent scholar of Palamism will be briefly addressed. Misled by the title that echoes the monastic *Κεφάλαια* and also perhaps ignoring both the developments occurring within this genre and the heterogeneous character of the compilation, Papademetriou ([2004], p. 18) includes the book (presented as *Chapters Physical, Theological, Ethical, and Practical*) in St. Gregory's ascetic and spiritual writings. In his view, such a classification would be justified by the supposed concern of the

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5. For example, the Palamite's *Chapters* cite from, and allude to, the following Church fathers: St. Athanasius the Great (*Chapters* 61, 79, 114), St. Basil the Great (*Chapters* 56, 68, 71, 72, 76, 82, 83, 84, 88, 93, 109, 111, 122, 143, 146), St. Cyril of Alexandria (*Chapters* 73, 96, 115, 116, 117, 118, 119, 120, 121, 124, 143), St. Dionysius the Areopagite (*Chapters* 65, 69, 77, 78, 79, 81, 85, 86, 87, 88, 90, 91, 106, 107, 122, 126), St. Gregory the Theologian (*Chapters* 49, 64, 77, 107, 109, 111, 124, 128, 130, 131, 146, 149), St. Gregory of Nyssa (*Chapters* 49, 52, 109, 112), St. John Chrysostom (*Chapters* 66, 74, 77, 95, 108, 110), St. John Damascene (*Chapters* 73, 80, 127, 129, 130, 131, 138, 143, 146), St. Maximus the Confessor (*Chapters* 76, 81, 88, 90, 111), St. Symeon the Translator (*Chapter* 149). The inclusion of quotes from two or more authors in the same chapter strongly suggests the use of anthologies.

6. This aspect echoes the ideas expounded by Palamas in the prologue of Ἀγιορειτικὸς τόμος, or *The Declaration of the Holy Mountain in Defence of Those Who Devoutly Practise a Life of Stillness*, in *The Philokalia*, vol. 4 (1995), pp. 418-419. For the original text, see Γρηγορίου τοῦ Παλαμά, Ἀπάντα τὰ Ἔργα, vol. 3 (Θεσσαλονίκη, 1983), pp. 496-498. For notes on the prologue, cf. Costache [2008 (c)], pp. 363-364; *idem* [2008 (a)], pp. 75-76.

*Chapters* to explain the “spiritual exercise anthropologically, dogmatically, and ethically”. Nothing of this kind can be found therein.

### The Structure of the *One Hundred and Fifty Chapters*

To get closer to our topic, a review of the *Chapters'* structure is necessary; it should be pointed out from the very beginning that there is no consensus on this matter among the scholars. Thus, seeking to substantiate the presumed coherence of the work and speculating its title, Chrestou ([1994], p. 8) ingeniously divides the content into four sections: natural chapters (1-33), theological chapters (34-40), ethical and practical chapters (41-67), and chapters against the Barlaamite defilement (68-150). This approach pertinently highlights the various difficulties involved with classifying St. Gregory's work by taking into consideration its intricate structure. Yet, Chrestou's division remains artificial and inaccurate. For example, what he designates as ethical and practical chapters refers mostly to a group of *Κεφάλαια* that explore the story of paradise and the fall in *Genesis*, therefore being mostly of exegetical significance. In turn, following closely in the footsteps of Sinkewicz ([1988], pp. 2-4), the editors of the English version of *The Philokalia* divide the content into two large sections<sup>7</sup>, 1-63 (“a general survey of the divine economy of creation and salvation”; this section comprises eight subsections) and 64-150 (“a refutation of false teachings concerning the divine light of Tabor and the uncreated energies of God”). Although this compartmentalization might reflect more accurately the content of the book, it fails to emphasize the apologetic-like character of that which features below as the first section.

It is this paper's contention that the content of the *Chapters* unfolds as three main sections of unequal length (of which the third is the lengthiest) and thematically disconnected. The first section (*Chapters* 1-29), which constitutes the main target here, reiterates early Christian apologetics<sup>8</sup> by engaging in a dialogue with Greek philosophy and science, mainly in regards to issues raised by Platonic and Stoic worldviews. Given that, after the closing of the last philosophical school of Athens under Justinian the Great (6<sup>th</sup> century A.D.), profane culture never again produced any serious challenge to the ecclesial mindset before modern times, this approach might seem anachronistic. However, during the 9<sup>th</sup> century and afterwards there emerged a series of Byzantine humanists who attempted

7. Cf. *Philokalia*, vol. 4, 1995, p. 291.

8. This aspect is not taken into consideration by G.I. Mantzaridis ([1984], p. 11), who divides the Palamite's corpus in anti-scholastic and pastoral writings.

— more or less openly and, indeed, more or less successfully — to revive the ancient thinking patterns in the form of some epistemologies that have been repeatedly branded as non-ecclesial.<sup>9</sup> In this context, therefore, St. Gregory's apologetic demarche is legitimate.

The second section (*Chapters 30-62*) aims at synthesizing the main anthropological ideas of the Church within a historical scheme of scriptural inspiration (paradise – fall – salvation) and deals namely with the human structure, the natural state of humanity as being open to God, and the relationship between the angels and humankind. Finally, the third section (*Chapters 63-150*) represents a dense recapitulation and nuanced interpretation of the patristic tradition, conforming for the reader Chrestou's description ([2005], p. 111) of Palamas as "the great synoptic presenter of the views of the fathers". This final section has a twofold aim. On the one hand, St. Gregory attempts at proving the reality of the uncreated energies and at pointing out their relevance to the mystical experience of divine and deifying participation. On the other hand, this patristic summary serves as a foundation for the strenuous deconstruction of the non-ecclesial epistemology of Barlaam, Akindynos, and other opponents of tradition.

This tripartite division highlights the heterogeneous character of the *Chapters*, probably constituting Palamas' closest replica of St. John Damascene's *Exact Exposition of the Orthodox Faith*. Indeed, the writing seems to represent a miscellaneous compilation of the Palamite's *Κεφάλαια*, an aspect consistent with the general features of the genre to which the book belongs. Consequently, and contrary to Sinkewicz's endeavor to connect what he considers the two parts of a work aiming to defend the uncreated energies<sup>10</sup>, no assumption will be made about the underlying theme of the present collection in what follows. What is, however, worth mentioning is that the first section at least partially introduces a completely new topic, especially when compared to the overall tone of St. Gregory's works, *i.e.*, the positive valuation of natural sciences. Although the last chapters of the section (25-29) stress the vanity of any knowledge deprived of existential significance, one cannot overlook the fact that Palamas literally enjoys dealing with scientific matters.

### Summary of the First Section (*Chapters 1-29*)

The book begins abruptly, without a general introduction or any indication of its motive and purposes (thereby once again demonstrating

9. Cf. Meyendorff [2001], pp. 129-149; Meyendorff [1979], pp. 54-65, 72-73.

10. Cf. Sinkewicz [1988], p. 4; *ibidem*, p. 55, for more nuances.

its miscellaneous character).<sup>11</sup> The first two chapters appear to constitute a prologue for the first section only, setting the cosmological and epistemological parameters of the ensuing discussion. *Chapter 1*, for instance, points out the existence of similarities between the theological and profane mindsets concerning the origin of the world in the work of an ultimate uncaused Cause; *Chapter 2* voices the Christian belief in the eschatological renewal of creation by the “power of the Holy Spirit”. The message conveyed is very clear: on the one hand, there are areas of confluence between the theological and natural epistemologies; on the other hand, there are fields that cannot be dealt with outside the confines of divine revelation.

The group of *Chapters* from 3 to 14 explore the Aristotelian universe, whose cosmological paradigm was acknowledged by the Byzantines and whose major division refers to the celestial and terrestrial realms. Within this group, two main subgroups are discernible: (a) from *Chapter 3* to *Chapter 7*, and (b) from *Chapter 8* to *Chapter 14*.

a) The first subgroup explores the astronomical field, endeavoring to dismiss the mythological and pseudoscientific idea of a “world soul” (κοσμική ψυχή)<sup>12</sup> or “universal soul” (παγκόσμιος ψυχή)<sup>13</sup> that ostensibly moves everything that exists. Palamas displays a good command of natural or, alternatively, Aristotelian science, which he employs in order to demythologize the astronomical theories of a Platonic, Stoic, and Neoplatonic background. In a typical way, he ascribes all celestial movements and phenomena, which he depicts in great detail, with exclusively natural explanations. Ignoring this thorough reiteration of Aristotelian-Ptolemaic cosmography and physics, Sinkewicz ([1988], p. 10) assumes incorrectly that the entire work aims at refuting Palamas’ opponents.

b) The second subgroup ventures into geography, together with the physics of the terrestrial and water spheres, elaborated within a cosmographic model inspired by the same Aristotelian-Ptolemaic concentric system of the world. One of the most interesting features of this subgroup is Palamas’ struggle to show more proficiency than the ancient cosmologists in using scientific tools (*cf.* end of *Chapter 9*<sup>14</sup>).

The final group of chapters included in this section, from 15 to 29, analyzes the different ways natural philosophy and science, on the one hand, and theology, on the other hand, depict reality, together with their respective mechanisms of perception. Within this group of chapters, three

11. For an interpretation of this section, which should be taken carefully given its authors’ biased idea about the general intention of the work, see Sinkewicz [1988], pp. 8-16.

12. *Chapter 3*; *cf.* *Κεφάλαια*, p. 76; *Topics*, p. 347.

13. *Chapter 4*; *cf.* *Κεφάλαια*, p. 80; *Topics*, p. 348.

14. *Cf.* *Κεφάλαια*, p. 86; *Topics*, p. 350.

subgroups may be discerned, (c) from *Chapter 15* to *Chapter 20*, (d) from *Chapter 21* to *Chapter 24*, and (e) from *Chapter 25* to *Chapter 29*.

c) The first subgroup considers the way in which natural knowledge is achieved through complex interactions between external objects, human senses, our (reflective or imaginative) capacity to represent objects, and the mind. In line with his earlier writings, St. Gregory's approach is neutral and expositive, suggesting no reluctance toward sense perception or the competence of cognitive processes in matters pertaining to natural knowledge.<sup>15</sup> His insight in the subjective conditions of cognition is significant, mostly his awareness that our grasp of reality is shaped — and this is typically an ascetical approach — by the personal state of attachment or detachment<sup>16</sup>, respectively. Highly relevant to this article is his remark that becoming aware of the “laws of nature” cannot be mistaken as being spiritual knowledge given that our natural faculties cannot handle what pertains to the Holy Spirit.<sup>17</sup>

d) The second subgroup reiterates the biblical narrative of *Genesis*, 1-2, pointing out the character of the theological approach towards reality as inspired by the “teaching of the Holy Spirit”<sup>18</sup>. The chain of being unfolds according to the scriptural order, this new narrative presenting holistically the creator God who brought heaven and earth into being through his Logos, and progressively organized everything into a coherent whole<sup>19</sup>, so that the cosmos can accommodate humanity. Nevertheless, Palamas brings largely cultural elements into this picture. Tackling the structure of creation, he interprets the biblical story within his contemporary cosmological paradigm, that is, the concentric Aristotelian-Ptolemaic universe, and relies on the natural sciences to interpret the cyclical movement of things.<sup>20</sup> By contrast with an earlier Aristotelian depiction<sup>21</sup>, however, he now inserts a Platonic-like — if not Pythagorean — depiction of the human being, consisting of both earthly and supracelestial elements<sup>22</sup>, a depiction which is consistent with the general patristic interpretation of *Genesis*, 2, 7. In the background, there operates a coherent theological

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15. Cf. Konstantinovsky [2006], p. 317. In turn, Sinkewicz ([1988], p. 13) contends unjustifiably that Palamas insists on the deceptive aspect of natural knowledge.

16. *Chapter 17*; cf. *Κεφάλαια*, p. 92; *Topics*, p. 353.

17. *Chapter 20*; cf. *Κεφάλαια*, p. 96; *Topics*, p. 354.

18. *Chapter 21*; cf. *Κεφάλαια*, p. 96; *Topics*, p. 354.

19. *Chapter 22*; cf. *Κεφάλαια*, pp. 96-98; *Topics*, pp. 354-355.

20. *Chapter 23*; cf. *Κεφάλαια*, p. 98; *Topics*, p. 355.

21. See *Chapter 3* (cf. *Κεφάλαια*, p. 78; *Topics*, p. 347), where the soul is taken as *ἐντελέχεια*, or final actualization of the body.

22. *Chapter 24*; cf. *Κεφάλαια*, p. 100; *Topics*, p. 356.

perspective, the author emphasizing the dependence of the universe on the Trinitarian God, the possibility to discern God's imprint in the harmonious adornment of the cosmos (*cf.* Chrestou [1994], p. 9), and the irreducibility of the human person to the cosmic environment.

e) The third subgroup addresses the main difference between natural epistemology and the God-inspired theology. Namely, if secular knowledge adds to the understanding of the natural function of being, theological knowledge is essentially interpretive and salvific, also making the believers aware of the subtle forces at work behind the world's visible fabric.<sup>23</sup> Moreover, theology plays the role of an interpretive and discerning tool contributing to the purification of scientific data from any deceptive interpretations that can affect our spiritual well-being. Ultimately, only theological knowledge reveals the majesty of humankind as irreducible to any aspect of the physical world.<sup>24</sup>

All things considered, it becomes obvious that far from representing an illegitimate novelty, St. Gregory's thinking is fundamentally Christian and traditional, both balanced and nuanced. Natural sciences have their well-grounded competence, yet this does not extend to matters pertaining to the domain of spiritual life. Before considering his acquaintance with secular science, a brief overview of his scriptural background is in order.

### A Biblical Framework

Displaying a strongly enculturated worldview, because he elaborates within the parameters of the Aristotelian-Ptolemaic paradigm, the Palamite's thinking remains nevertheless thoroughly biblical. The second chapter clearly endorses this scriptural stance, evoking as authority "the prophecy of those inspired by God and of Christ himself, the God of all"<sup>25</sup>. Papademetriou ([2004], pp. 61-62) is therefore right when he perceptively notes that, for Palamas, the source of theology is the divine revelation such as it is witnessed by the Scripture and the Church fathers. Given the very scriptural spirit of the Philokalic tradition — to which he undoubtedly belongs — and the impressive exegetical and/or homiletic output of his years as archbishop of Thessaloniki, this should come as no surprise.

His generous use of secular knowledge notwithstanding, Palamas makes it clear from the outset that he is aware of the intrinsic limitations pertaining to scientific epistemology and the indisputable competence of

23. Chapter 29; *cf.* *Κεφάλαια*, p. 106; *Topics*, p. 358.

24. Chapter 26; *cf.* *Κεφάλαια*, pp. 102-104; *Topics*, pp. 356-357.

25. Chapter 2; *cf.* *Κεφάλαια*, pp. 74-76; *Topics*, pp. 346-347.

scriptural revelation for all theological and spiritual matters. He thus points out the general agreement between nature, culture, and Scripture, or between empirical knowledge and divine revelation, by admitting that the world has a beginning. However, he also emphasizes the superiority of the biblical worldview over all “who sophisticatedly teach the contrary”. Textually, he states: “That the world has an origin nature teaches and history confirms, whilst the discoveries of the arts, the institution of the laws and the constitution of states also clearly affirm it. [...] Yet we see that none of these surpasses the account of the making of the world and of time, as narrated by Moses.”<sup>26</sup>

The indirect proofs inferred from all human activities by the logic of causality represent mere confirmations of the truth revealed from above and proclaimed by the Scriptures, that God is the originator of the whole of creation. Such a definitive approach indicates both Palamas’ unequivocal biblical mindset, and his propensity to translate the ecclesial message via digestible cultural categories.

Furthermore, the group of chapters from 21 to 24, whilst intertwining the biblical narrative of *Genesis*, 1 with the concentric model, ultimately constitute a genuinely scriptural rendition of the order of creation. Summarizing the ecclesial worldview, Palamas closely follows the account of the cosmogenesis by depicting — instead of a static and geocentric worldview, as suggested by Sinkewicz ([1988], p. 14) — a universe shaped dynamically to sustain life and people. Beginning with a presentation of the Creator and the general image of the universe termed as “heaven and earth”<sup>27</sup>, he introduces sequentially the organization of creation in six days through divine commandments<sup>28</sup>, as an ecosystemic and anthropic process culminating in the arrival of humankind<sup>29</sup>. Motivated by pastoral and missionary concerns, this approach refers to a readership which — conditioned by both the Christian faith and a certain cultural paradigm — may find comfort, meaning, and purpose in a world that could be at times terrifying in its silent majesty. This kind of approach avoids any syncretism and ideological juggle (cf. Ware [2004], p. 163).

Adopting the traditional “apologetic” method of the early fathers, St. Gregory systematically endeavors to assimilate the Hellenistic cosmography by grounding it in the Scriptures. Beyond scientific insights, the world and its summation, the human being are primarily God’s creation and cannot be fully comprehended outside the theological worldview.

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26. Chapter 1; cf. *Κεφάλαια*, p. 74; *Topics*, p. 346.

27. Chapter 21; cf. *Κεφάλαια*, p. 96; *Topics*, p. 354.

28. Chapter 22; cf. *Κεφάλαια*, p. 96-98; *Topics*, pp. 354-355.

29. Chapter 24; cf. *Κεφάλαια*, p. 100; *Topics*, p. 356.

Furthermore, as creation and, in a panentheistic sense (*cf.* Ware [2004], p. 166), the cosmos are neither divine nor spiritually meaningless, since they are not deprived of God's presence and embrace. This effort to integrate scientific information within the Christian worldview is obvious in many ways; to give just one more example, Palamas quotes *Ecclesiastes*, 1, 6 (LXX) in *Chapter 8*, for instance, as an illustration of the Bible's insight into natural phenomena such as the winds. The biblical dimension is even better represented in the second section of the book, which explores the intricacies of ecclesial anthropology — but that will remain outside the scope of this essay.

All things considered, the solid scriptural background of the Palamite's thinking expresses its traditional Christian profile together with its relevance for the ecclesial mindset. Meyendorff aptly notes ([1998], pp. 118-120) that this background is precisely the source of St. Gregory's positive attitude toward the world as God's creation and the sciences as a means to explore the nature of the cosmos. My paper will now turn to an analysis of the scientific component of the first section of the *Chapters*.

### St. Gregory's Use of Science

As noticed, the first section examines a variety of topics related to the natural sciences, pointing out the similarities and incongruities between the secular and theological worldviews. Typically, Palamas moves on to demonstrate the superiority of Christian faith in matters pertaining to the spiritual experience only after presenting in detail the scientific and philosophical thinking-patterns advocated by the humanists.

It is very true that, providing non-theological information, Palamas sometimes mentions in a general way the Greek "sages" (σοφοί)<sup>30</sup>, "Greek philosophy" (τῆς καθ' Ἑλληνικὰς Φιλοσοφίας)<sup>31</sup>, the "naturalists" (φυσιολόγοι) and the "stargazers" (ἀστροθεάμονες)<sup>32</sup>, leaving to certain modern scholars the impression that he was not "closely familiar" with the relevant sources<sup>33</sup>. Such a perception — echoing allegations, both old and new, that St. Gregory did not enjoy an advanced education<sup>34</sup> — is utterly superficial. The relative absence of explicit references is understandable in a

30. *Chapters 3 & 9; cf. Κεφάλαια*, pp. 76 & 84; *Topics*, pp. 347 & 349.

31. *Chapter 26; cf. Κεφάλαια*, p. 102; *Topics*, p. 356.

32. *Chapter 28; cf. Κεφάλαια*, p. 104; *Topics*, p. 357.

33. *Cf. The Philokalia* vol. 4, 1995, p. 291, n. 1.

34. *Cf. Meyendorff* [1974], p. 76; *Meyendorff* [1998], pp. 28-31; *Papademetriou* [2004], pp. 3, 19, 51, 62-63.

book that was never designed to endorse the authority of pagan authors; in fact, this silence matches the usual reluctance of the Church fathers to acknowledge the pagan origin of the concepts that they reiterated in a Christian context. In addition, it is very likely that the anonymous sages, philosophers, and scientists Palamas had in mind were his contemporary humanists, branded by the Byzantines as being simply “pagans”.<sup>35</sup> This understanding appears in his note that those maintaining the concept of a “world soul” are “most proficient” (ἄκροισι) in “wisdom and theology” (τὴν σοφίαν καὶ τὴν θεολογίαν)<sup>36</sup>; it is well-known that by his time the term *theology* had long since ceased to refer to ancient philosophy, mostly after the condemnation of the Platonizing John Italos at the end of 11<sup>th</sup> century<sup>37</sup>. Following this line, in his earlier writings against Barlaam — such as the group comprising the third triad — St. Gregory labels his opponent simply as a “philosopher”, *i.e.*, bearer of a pagan mindset. We can therefore identify the “Greek sages” with the intellectuals grouped around Nikephoros Gregoras<sup>38</sup>, another Platonizing thinker who relaunched the attacks against Palamas after the defeat of Barlaam and Akindynos.

Nevertheless, the scientific data employed in the first section and throughout the book are mainly (yet not exclusively<sup>39</sup>) drawn from Aristotle’s treatises<sup>40</sup>, both *verbatim* and in the form of paraphrases. The Stagirite’s concentric cosmology is explicitly referred to in chapter 10<sup>41</sup> and the famous “categories” later in the book, in *Chapter* 13<sup>42</sup> (in a paradoxical attempt to show how God both can and cannot be conceptually circumscribed). Furthermore, in *Chapter* 25<sup>43</sup>, St. Gregory enumerates three ancient scientists (Euclid, Marinos, and Ptolemy), together with

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35. See a brief presentation of the first crisis of Byzantine humanism in Meyendorff [1979], pp. 61-64. Sinkewicz ([1988], pp. 5-6) gives a list of 11<sup>th</sup> to 14<sup>th</sup>-century Byzantine scholars involved in a Renaissance-like interest in sciences.

36. *Chapter* 3; cf. *Κεφάλαια*, p. 78; *Topics*, p. 348.

37. See Meyendorff [1979], p. 64; Chrestou [2005], pp. 110, 179.

38. Cf. Chrestou [2005], p. 112; Meyendorff [1998], pp. 39, 78; Stăniloae [1977], p. 216; Sinkewicz [1988], p. 15.

39. Chrestou identifies in the *Κεφάλαια* a series of other sources, such as: in *Chapter* 3, Plato’s *Timaeus*, 34, *The Laws*, 10 & *Phaedrus*, 245, and, in *Chapter* 13, Euclid’s *Elements*, 12.18.

40. Namely: *On the sky*, 1.2 (twice in *Chapter* 3), *On the soul*, 2.1 (in *Chapter* 3) and 2.6 (in *Chapter* 15), *On the world*, 3 (in *Chapter* 10) and *Meteorology*, 1.4 (in *Chapter* 11). For Palamas’ use of Aristotelian logic in his earlier writings, see, *e.g.*, Konstantinovskiy [2006], pp. 314-316.

41. *Κεφάλαια*, p. 86; *Topics*, p. 350.

42. *Κεφάλαια*, p. 240; *Topics*, p. 409.

43. *Κεφάλαια*, p. 102; *Topics*, p. 356.

four schools of logic and mathematics (Empedoclean, Socratic, Platonic, and Aristotelian). Having in mind the above, we may surmise that even if he had not consulted primary sources, Palamas could have become acquainted with the afore-mentioned authors and schools through the handbooks and anthologies used in the Imperial University, not to mention his instruction under the Aristotelian teacher Theodore Metochites (cf. Papademetriou [2004], p. 3). However, this neither affects the veracity of the information provided, nor does it diminish the significance of his copious use of scientific data.

The difficulties of perception concerning St. Gregory's use of science extend, however, beyond the above. For instance, the editors of the fourth volume of the English version of *The Philokalia* cautiously note that Palamas' worldview is mostly personal and "must not be taken to represent Christian cosmology as such"<sup>44</sup>. As useful as this warning might seem against literalist approaches, both the suggestion of novelty and the assessment behind it remain nevertheless inaccurate. Nothing about the Palamite's narrative of creation is fundamentally unknown or foreign to patristic tradition, if compared with, for example, St. John Damascene's *Exact Exposition*, book 2. Furthermore, Palamas shared with the holy fathers a spiritual discernment that opposed any illegitimate wedding of faith and culture<sup>45</sup> — a selective method whose paragon undoubtedly remain St. Basil the Great's *Homilies on the Hexaemeron*. The fathers had employed scientific models as channels to communicate the Christian faith, without ever substituting them for the spirit of the ecclesial worldview. This is also the case of St. Gregory, whose cosmology, whilst reflecting the parameters and issues characterizing his contemporary culture<sup>46</sup>, remains ecclesially relevant in its theological dimension, beyond the science that constitutes its framework. Without representing either a novelty or the last word on the matter, his approach to science facilitates further and similar interactions between the ecclesial worldview and the various scientific paradigms.

Now, speaking of his use of secular science, two distinct approaches immediately elicit our attention. First, Palamas acknowledges science as a tool capable of unlocking the secrets of the natural laws; as such, it contributes, on the one hand, to the development of civilization and, on the other hand, as a way to discern the wisdom of the provident God within the world (since the nature of the cosmos is to be God's creation). He literally asserts that studying the laws of nature and becoming aware of

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44. Cf. *The Philokalia*, vol. 4, 1995, p. 291, n. 1.

45. For a perceptive depiction of this exercise of discernment, see Lossky [2002], p. 104.

46. Cf. Chrestou [1994], p. 9; Flogaus [1998], p. 8.

how things really work in the universe may lead — causally, that is — to knowing God who “made, ordered and adorned” everything.<sup>47</sup> Second, Palamas highlights the limitations of scientific epistemology in order to prevent any attempt of absolutizing its potential — an aspect to which I will return later on.

Although in earlier works he never thoroughly addressed scientific issues, in the *Chapters* St. Gregory displays a surprisingly proficient command of such matters. Throughout the work, he continually praises the usefulness of the sciences and applies them skilfully to various matters, such as the use of geometry in *Chapter* 81. One should notice, however, that this impressive display of scientific awareness is not ostentatious; St. Gregory is a Church father and his approach is always motivated by very practical reasons. As such, throughout the first section of the book he relies on the Aristotelian or naturalistic epistemology only insofar as he can use it to fight the animist-like theory of a “world soul”, which contradicted the ecclesial doctrine of creation. He insists that “every stone, every piece of metal, all earth, water, air, or fire, moves naturally (φύσει κινεῖσθαι), not by virtue of a soul (ἀλλ’οὐ τῆ ψυχῆ)”<sup>48</sup>. In *Chapter* 21<sup>49</sup>, he gives a similar naturalistic explanation with reference to the world’s emergence out of the “pregnant” (κυόφορον) womb of the pristinely chaotic “heaven and earth” (cf. *Genesis*, 1, 2): all things derive from that original matrix endowed with a generative potential<sup>50</sup>. These features are not considered by authors like Sinkewicz ([1988], p. 5), who ascribes to the *Chapters’* first section Palamas’ usual concern — his struggle against his intellectual opponents. On another note, this consistently naturalistic approach dismisses the current prejudice that, at least to some critics<sup>51</sup>, Palamas embodies the triumph of Neoplatonism over Christian tradition.

Otherwise, St. Gregory presents a variety of scientific theories and data, such as the stratified and concentric cosmos (*Chapters* 5 and 10-14), the movement of the winds (*Chapter* 8), the proportion of land and waters on earth (*Chapters* 9 and 10), and the mechanisms of sense perception and natural intellection (*Chapters* 15-20). The most impressive is perhaps the demonstration in *Chapters* 13 and 14<sup>52</sup> (meant to determine the amount of

47. *Chapter* 23; cf. *Κεφάλαια*, p. 98; *Topics*, p. 355.

48. *Chapter* 3; cf. *Κεφάλαια*, pp. 76-78; *Topics*, p. 347.

49. Cf. *Κεφάλαια*, p. 96; *Topics*, p. 354.

50. Stăniloae ([1977], p. 435, n. 684) sees here a suggestion toward what we designate today as natural evolution.

51. Cf. Konstantinovskiy [2006], pp. 313, 318-319; Papademetriou [2004], pp. 25-30; Bradshaw [2004], pp. 268-271; Stăniloae [1977], pp. 216-221.

52. Cf. *Κεφάλαια*, pp. 88-90; *Topics*, pp. 351-352.

inhabitable land), which endeavors to find the actual position of the center of the water sphere with reference to the terrestrial sphere; the exposition is accompanied by a graphic whose meaning is analyzed in detail from a purely scientific viewpoint.

At any rate, there is no doubt that the Palamite values scientific knowledge. Although the significance of his contribution remains ignored by contemporary researchers, St. Gregory's thinking matches the profile of all medieval scholars who were thoroughly versed in both science and theology.<sup>53</sup>

### A Hierarchical Epistemology

Following the traditional apologetic demarche as represented, in the 4<sup>th</sup> century A.D. for example, by St. Basil the Great and St. Gregory of Nyssa (*cf.* Stramara [2002], pp. 151-155), the Palamite's work displays a balanced and courageous integration of scientific data within a scripturally based, Christian worldview. Thus, when describing life and the cosmos, St. Gregory takes, in our modern terms, the interdisciplinary approach, even though the purpose of his laborious enterprise, as already mentioned, remains genuinely pastoral. He makes use of scientific data in order to stir a sense of awe in the reader's mind before the meaningful complexity of the world, as designed, brought into being and sustained by its Creator.

Given his lasting controversy (*cf.* Coffey [1988], pp. 330-331) with the promoters of intellectualist reductionism and in an attempt to avoid any epistemological clatter, Palamas raises with clarity — perhaps for the first time in a consistent manner within the Byzantine context — the issue of distinct competencies pertaining to various fields of expertise. That is, by seemingly following St. Maximus' differentiation of the natural intellectual faculties and the transfigured perception characterizing mystical illumination<sup>54</sup>, he delineates with precision the boundaries between theological insight and scientific knowledge (Meyendorff [1998], p. 120). Along with the very possible Maximian affiliation, at least two other factors (*cf., e.g., Chapters 78-80*) may be traced behind this sharp distinction: St. Gregory's commitment to the Christian teaching of the ontological gap between the uncreated creator and his creation, and his experience as a hesychast. Irrespective of its sources and influences, this demarcation represents a revolutionary contribution at a time when, for both East and

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53. This characterization of medieval scholars belongs to D.C. Lindberg ([2002 (b)], p. 58). Palamas' name is missing altogether from the volume.

54. *Cf. To Thalassius*, 59, *apud* St. Maximus the Confessor [1990], pp. 45 (line 12) – 47 (line 54).

West, the frontiers between science and theology had not been drawn. It is precisely this confusion that allowed his opponents to use the flamboyant, yet inaccurate expression that theology is “the queen of the sciences”.

St. Gregory’s epistemological scheme, however, encompasses more than the sharp delineation of domains (to which I will return), attempting to bridge the intervals between the various disciplinary fields in the traditional style of cultural syntheses. Whilst acknowledging their respective features and the fact that they operate on different levels of reality, Palamas does not consider science (natural cognizance) and theology (revelation from above) as contradictory and mutually exclusive. On the contrary, they both contribute to holistic education in the same way in which the human psychosomatic faculties cooperate in gathering and processing information (*cf. Chapters 16 and 19*). Notwithstanding this fairly balanced approach, one may find in the background — as an essential component of the Palamite’s epistemology — the “imbalance” entailed by a hierarchical perception.<sup>55</sup> Motivated exclusively by soteriological and pastoral concerns, this perception acts as a criterion discerning the extent to which the two domains, of science and theology, contribute to personal formation. More precisely, it endeavors to establish existential — not ideological — priorities. In light of this criterion, not all knowledge brings us closer to God, perfection and mystical enlightenment; not all knowledge makes us take part in the divine life; therefore, not all knowledge should be cultivated at the same rate by those interested in spiritual becoming. While science has its own right to research the laws of nature, ultimately it cannot be prioritized within the ecclesial context and on the path of spiritual becoming.

These nuances should be carefully considered when addressing Palamas’ reluctance toward sense perception and natural intellection, so as to avoid the common misconception that he generally rejected science. His prioritization of theological knowledge in spiritual matters (like in *Chapters 25-26*) does not imply an abandonment of science altogether, as demonstrated by his skillful use of it in matters pertaining to nature. For instance, in *Chapters 20 and 26*, St. Gregory points out the limitations of scientific epistemology or the “philosophy based on sense-objects”, which is intuitive in essence and utterly confined to the empirical horizon by its use of the thinking-patterns as pertaining to an enstatic (non-mystical) intellect. This is not to imply, however, a general mistrust in regard to sense perception.<sup>56</sup> St. Gregory merely insists that the natural way of knowing has no competence on matters lying beyond its reach, such as

55. For this particular understanding of hierarchy, see Costache [2008 (c)], pp. 354-364.

56. See *Chapter 63*; *Κεφάλαια*, p. 132; *Topics*, p. 375.

the deifying experience of the hesychast saints. In *Chapter 20*<sup>57</sup>, he points out: “Such [empirical] knowledge we gather from the senses and the imagination (ἐξ αἰσθήσεως καὶ φαντασίας) by means of the intellect (διὰ τοῦ νοῦ). Yet no such knowledge can ever be called spiritual (πνευματική) for it is natural (φυσική), the things pertaining to the Spirit remaining beyond its scope.”

Knowledge of God, spiritual experience, or the deifying participation can be reached only through the ecstatic or mystical attitude of those who — acknowledging their “own infirmity” — seek healing within the Church, not without ascetic efforts.<sup>58</sup> Primarily concerned with “finding salvation”, they receive the “light of knowledge” (τῷ φωτὶ τῆς γνώσεως) and the “true wisdom” (σοφίαν ἀληθῆ) that cursory factors cannot obfuscate.<sup>59</sup> Attaining “the wisdom of the Spirit” (ἡ κατὰ πνεῦμα σοφία), they come to the realization that nothing matches this experience: sense perception and the natural sciences are simply unable to lead to “saving knowledge” (ἡ σωτήριος γνώσις) and therefore cannot “procure for us the joy from above”.<sup>60</sup> Thus, proving incapable of scrutinizing the other, uncreated, side of reality and “to know God truly” (that is to see, love, and worship him<sup>61</sup>), scientific epistemology has to humbly admit its limitations and acknowledge the competence of theology in matters transcending physical, common experience. One might likewise surmise that, given his soteriological motivations, to Palamas it is the complex interactions between God, humanity, and the cosmos (see the beginning of *Chapter 26*) that make the object of theology, not the way things work within the natural realm.

There is nothing arrogant about this exhortation to discernment; at least, nothing to parallel the arrogance exhibited by many modern scientists who, like the ancient naturalists (*cf. Chapters 26 and 28*), idolize and trust their limited means in an absolute manner, thus denying, to paraphrase St. Paul (*I Corinthians, 2, 9*), what the eyes have not seen and human mind cannot conceive; also, nothing to parallel the fundamentalist claims that theological knowledge is all-encompassing, while science remains utterly futile. St. Gregory’s epistemology is anything but simplistic and reductionist. Papademetriou ([2004], p. 62) points out that given his commitment to the doctrine of the ontological gap, for Palamas “there are two ways to knowledge: scientific for created reality and divine wisdom for

57. Κεφάλαια, p. 96; *Topics*, p. 354.

58. *Chapter 24*; *cf. Κεφάλαια*, p. 100; *Topics*, p. 356.

59. *Chapter 29*; *cf. Κεφάλαια*, p. 106; *Topics*, p. 358.

60. *Chapter 25*; *cf. Κεφάλαια*, p. 102; *Topics*, p. 356.

61. *Chapter 26*; *cf. Κεφάλαια*, p. 102; *Topics*, pp. 356-357. See also Chrestou [1994], pp. 9-10.

the knowledge of uncreated being". Thus, given their incommensurable methods and their respective competences for utterly different levels of reality, science is never — to paraphrase St. Augustine's famous dictum<sup>62</sup> — a handmaiden of theology and theology never queen of the sciences.

Without ever implying a confusion of domains, Palamas apparently aims at dismantling the dangerous construct represented by the hypocritical designation of theology as queen of the sciences — a designation that seems to have been favored by his opponents. Indeed, there are serious flaws with the rationale behind such a label. Since the aim of theology is to know God, and since God is uncreated, infinitely transcending both created nature and the tools designed to explore the cosmos, maintaining the idea of a *mathesis universalis* (one epistemology applicable to all levels of reality) is inaccurate, simplistic, and, ultimately, utopian. Pointing to this understanding, Palamas anticipates the first postulate of transdisciplinarity<sup>63</sup> seven centuries in advance. Thus, the pompous label of queen of the sciences indicates, in fact, an attempt to reduce theology to the scientific approach (the queen cannot but represent the culmination of a method to be found at the very base), leaving the deceptive impression that there is only one level of reality, that of the created order. Far from representing the culmination of natural knowledge (*cf.* Papademetriou [2004], p. 63), theology is an ecclesial function called both to interpret everything in light of the divine revelation, and to explore the mystical levels of reality (such as the uncreated life and the deifying participation) lying beyond the grasp of science, logic, and metaphysics.

St. Gregory's understanding and method constitute bright examples of a sharp discernment and balanced approach that remain so necessary in our contemporary circumstances. Theology and science do not compete within the same level of reality and consequently develop different, incommensurable epistemologies. If Palamas sounds radical with reference to the limitations of natural science, this attitude is motivated primarily by his aim at emphasizing the existence of levels of reality unexplored by the scientists. Experienced synergetically through personal participation in the divine life, as divine-human interaction (*cf.* Bradshaw [2004], p. 265) and beyond common perception, these levels are as real as everything else, with the exception that no instrument other than our own being can serve to access and "measure" them. This is perhaps the essence of St. Gregory's legacy: to indicate how the adventure of knowing involves

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62. For various approaches to the concept, see Nesteruk [2003], pp. 30-33, 36-40; Lindberg [2002 (a)], pp. 50-53. On St. Augustine's attitude toward sciences, see also Stramara [2002], pp. 158-160.

63. For the main transdisciplinary postulates, see Nicolescu [2002], p. 272.

us and passes through our being; to show that beyond the ontological gap the experience of God is very much possible; and to point out that the end of the journey is the transformative experience of theosis/deification, not just the acquisition of gnosis/knowledge.

### Conclusion

The main standpoints Palamas defends throughout the debate with his opponents — such as the natural incapacity of the human mind to explore the transcendent realm and to comprehend the parameters of mystical experience — are still very much present in the *Chapters*. Yet, in this later work he openly acknowledges the competence of the natural sciences to scrutinize the created cosmos, together with their contribution in refuting the theory of a “world soul” and facilitating the contemplation of God’s wisdom as manifest in creation. His discourse presents the complex interactions between theology and science in a surprisingly balanced manner and within a holistic perspective that anticipates the contemporary transdisciplinary approach. From the point of view of his consistent hierarchical scheme (configured by soteriological criteria and pastoral purposes) he stresses that the scientific epistemology has nothing relevant to say about the spiritual experience. This aspect lies at the core of the entire Palamite’s edifice, which holds as a central axiom the sharp distinction between worldly knowledge and theological wisdom. Precisely this division between theology and the natural sciences allowed him to construe their relationships in a manner preferable to the redundant classic scheme, which assumes that science is the foundation of all knowledge and that theology, at its apex, is its queen. This may be considered one of St. Gregory’s main contributions at a time when the scientific and theological competencies were far from being thoroughly differentiated.

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# La Théologie de la Création devant les acquis scientifiques. Théologie et Écologie

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## Introduction

Les défis de l'écologie et du développement durable conduisent l'humanité toute entière aujourd'hui à une prise de conscience de l'urgence d'agir au niveau mondial pour une véritable qualité de vie et d'« alliance » entre l'homme et son environnement naturel.

Les questions d'écologie aujourd'hui sont signes des relations difficiles de l'homme avec son environnement naturel. Elles sont autant de défis techniques, politiques, économiques, mais aussi éthiques, avec des dimensions anthropologiques et spirituelles fortes. Le principe de responsabilité de Hans Jonas le montre très bien.

Devant ces défis, ainsi que des critiques écologistes du christianisme, comment comprendre et reformuler la théologie de la création en tenant compte des acquis de la science moderne ? Certains théologiens modernes comme J. Moltmann (*Dieu dans la création*, Cerf, 1988) et René Coste (*Dieu et l'Écologie*, l'Atelier, 1994) tentent d'y répondre, reconnaissant que la crise écologique est née dans une culture influencée par le christianisme. D'où la question de J. Moltmann : « Comment faudrait-il comprendre et formuler de façon nouvelle la foi chrétienne en la création, si on ne veut pas qu'elle continue à être elle-même un facteur (présupposé) de la crise écologique et de la destruction de la nature, mais qu'elle devienne un ferment de la paix avec la nature que nous devons rechercher ? » (pp. 35-40).

Dans les relations entre théologie de la création, sciences et écologie, notre angle d'approche sera la place et le rôle de l'homme dans le cosmos. Quel est l'impact de ces sciences modernes sur la place de l'homme dans la nature ? Comment la mentalité judéo-chrétienne a-t-elle réagi ?

Devant la mise en accusation de la mentalité judéo-chrétienne jugée anti-écologique, nous verrons quelques causes possibles de ce fâcheux malentendu :

- interactions entre le développement des sciences modernes avec Descartes et Galilée et la place de l'homme dans le cosmos. Nous prendrons Pascal comme témoin de cette remise en cause et verrons des conséquences sur le changement de mentalité avec ses éventuelles conséquences en matière d'écologie;
- puis l'impact des sciences de l'évolution, d'une part sur une sorte de « nouvelle alliance » de l'homme avec la nature et le cosmos dont il est issu et le décalage avec la vision chrétienne de la création, cause de malentendus. Teilhard de Chardin permettra de mieux situer la théologie de la création et les positions de l'Église catholique aujourd'hui pour répondre aux accusations anti-écologiques vis-à-vis du christianisme.

Enfin, nous déboucherons sur ce que le pape Jean-Paul II appelait l'« écologie humaine ».

### L'écologie, un signe des temps

L'effet médiatique du film de Al Gore, *Une vérité qui dérange*, ainsi que d'autres reportages ou conférences, nous alertent sur les dangers du développement et dressent parfois un tableau apocalyptique de l'avenir. Le rapport de Nick Stern (sorti le 30 octobre 2006, à la demande du gouvernement britannique) annonce les ravages que feront les changements climatiques, en raison des émissions de gaz à effet de serre, par exemple, en fonction du nombre de degrés d'augmentation des températures moyennes.

Les générations qui nous suivent devront vivre avec des températures plus élevées, avec de graves conséquences (en Afrique, par exemple, et pas seulement parce que les neiges du Kilimandjaro ne sont plus éternelles), dont la hausse du niveau des mers, des phénomènes climatiques extrêmes plus fréquents (cyclones, par exemple) et des ressources (en eau, par exemple) à gérer d'une manière différente. Pour un véritable « développement durable » (pour que les générations futures trouvent encore une terre habitable, que l'air y soit respirable, l'eau potable garantie...), l'heure des décisions mondiales a sonné. Des mesures immédiates s'imposent ; elles sont proposées par l'Union Européenne notamment, dans le cadre des accords de Kyoto, vis-à-vis des réductions d'émission de CO<sub>2</sub>, par exemple. La question de l'énergie rebondit, non seulement avec le développement des énergies renouvelables moins polluantes que le pétrole

et le charbon, mais aussi avec les projets de moteurs électriques (ou hybrides) et les nouveaux processus d'énergie nucléaire par fusion (ITER).

Devant la complexité des phénomènes, les réponses possibles sont multiples : réponses techniques (privilegiées par les Américains), réponses de changements de comportement vis-à-vis de la nature, de la pollution, du pillage des ressources naturelles...

Le concept de développement durable est né de deux constats :

- la fracture Nord/Sud et la recherche d'un développement qui respecte tout homme ;
- la crise écologique et l'urgence de sauvegarder l'environnement.

Le lien entre les objectifs de développement et la crise de l'environnement conduit au concept d'éco-développement proposé au début des années 1970 (conférence internationale de Stockholm sur l'environnement humain, en 1972). La notion de développement durable apparaît en 1980 et est officialisée par le rapport Brundtland en 1987 (*Notre Avenir à Tous*). La définition proposée de cette notion est : « un développement qui répond aux besoins du présent sans compromettre la capacité des générations futures de répondre aux leurs ».

Deux concepts sont inhérents à cette notion : le concept des « besoins » et, plus particulièrement, des besoins essentiels des plus démunis, à qui il convient d'accorder la plus grande priorité, et l'idée des limitations que l'état de nos techniques et de notre organisation sociale impose sur la capacité de l'environnement à répondre aux besoins actuels et futurs.

Les trois piliers du développement durable sont donc : l'économique, le social et l'environnement. Le « durable » se situe à l'intersection du viable, de l'équitable et du vivable.

Le Club de Rome avait déjà publié, en 1972, un rapport « Halte à la croissance ? Ou les limites de la croissance ».

Le philosophe juif Hans Jonas (qui a beaucoup fréquenté Husserl, Heidegger, Bultmann et Hannah Arendt) exprime, en 1979, son « principe de responsabilité », en développant une « éthique pour la nature », véritable éthique pour l'âge technique. Dans la philosophie qu'il énonce vers la fin de sa vie, il veut apporter une réponse aux problèmes que pose la civilisation technicisée, à savoir les problèmes environnementaux, les questions du génie génétique, etc. D'après lui, le pouvoir énorme qui est conféré à l'homme par la techno-science constitue un problème auquel doit répondre, en l'homme, une nouvelle forme de responsabilité. Celle-ci n'est pas à comprendre comme une attitude, mais plutôt comme une faculté proprement humaine, que tout homme est tenu d'exercer.

La « responsabilité » jonassienne n'a rien à voir avec la responsabilité qui naît de la propriété, ou de l'obligation de réparer le tort fait à autrui, que l'humanité reconnaît depuis des millénaires comme un principe de

justice naturelle. Non, cette « responsabilité »-là, interdirait à l'homme d'entreprendre aucune action qui *pourrait mettre en danger* soit l'existence des générations futures, soit la qualité de l'existence future sur terre. C'est pourquoi, avant d'utiliser une technologie, il devrait toujours s'« assurer » que toute éventualité apocalyptique soit exclue. Par cette prescription, Hans Jonas prétend exiger une connaissance préalable à l'agir qu'on ne peut obtenir que par cette action elle-même. C'est ainsi que ceux qui le prennent au sérieux s'opposent systématiquement à certains progrès, non pas par hostilité de principe au développement, mais parce qu'ils voient les risques associés à certaines actions.

Hans Jonas est très connu en Allemagne, où *Le Principe Responsabilité* est le livre de « philosophie » le plus diffusé. Il est encore peu connu dans les pays francophones. Il a inspiré le « principe de précaution » imposé dans le droit français via les directives européennes, différentes lois nationales (un article dans la loi NRE), l'inclusion de la charte de l'environnement dans la Constitution de la V<sup>e</sup> République...

La question écologique ne comporte pas seulement une dimension éthique : comment se comporter, se régler, se discipliner pour redresser la situation ou réduire le mal. Il y a des enjeux de sens, des enjeux philosophiques et religieux. Pas plus que les hommes d'autres religions, les chrétiens ne pourront se contenter d'attitudes humanistes pragmatiques, sans fondement spirituel ; il leur faut recourir à leur foi pour éclairer les comportements.

L'Écriture Sainte n'apprend rien sur le réchauffement climatique ou la disparition des espèces. Mais elle dit beaucoup sur le lien entre Dieu, l'homme et la Nature. C'est ce que la théologie de la création véhicule depuis toujours, souvent ignorée cependant.

### La mentalité judéo-chrétienne mise en accusation

Le christianisme est perçu dans certains milieux comme anti-écologique, support d'un développement scientifique et technique débridé, au rythme d'un libéralisme économique inarrêtable ! Devant une telle accusation, l'Église ne pourrait-elle que se consoler avec un François d'Assise qui est, pour beaucoup, l'exception chrétienne au mépris de la nature ?

C'est un historien américain, Lynn White, qui parle, dans la revue *Science*, en 1967, des déviations multi-séculaires en matière d'écologie de la moralité judéo-chrétienne, coupable, selon lui, d'avoir forgé l'image d'un homme tyran/dominateur de la création par décret du Créateur !

Pour répondre à cette accusation, il faut peut-être distinguer deux éléments clés de l'histoire de l'homme et de la science, qui s'interpénètrent :

- la théologie de la création depuis le début du christianisme ;
- l'impact des sciences modernes, à partir du XVII<sup>e</sup> siècle, sur une « déchristianisation du cosmos » et sur les changements de mentalités vis-à-vis de la nature en Occident.

J'emprunte ici l'analyse de Jean Bastaire dans son livre *Pour une écologie chrétienne* (Cerf, 2004). Voici, du reste, le début de la préface de ce livre, co-écrite par trois évêques au nom de la conférence épiscopale française : « Ainsi, l'homme n'est pas le maître absolu de la création. S'il a le droit d'en user, il n'a pas celui d'en abuser. Il doit en être l'intendant et le gestionnaire responsable. C'est une gérance qui lui est confiée afin qu'il fasse fructifier... Il n'est pas superflu de ressaisir combien les sources juive et chrétienne de la pensée occidentale, loin de favoriser la vision d'un homme qui pourrait s'octroyer tout pouvoir sur la planète, tel un démiurge, l'oblige, au contraire, à s'en faire l'humble gérant dans un esprit de louange et de service. Les enfants en ont spontanément le sens ; ce sont nos oublis et nos parades qui les en détournent. »

## La nature dans la théologie de la création

### *Dans l'Écriture*

Dans les premiers chapitres de la *Genèse*, l'auteur biblique montre Dieu créant le ciel, la mer, la terre, les plantes et les animaux, qu'il déclare « bons ». Il crée, enfin, l'homme à son image, à sa ressemblance, pour dominer l'ensemble de la création et veiller à ce que chacun y respecte la vie. Il n'est permis à personne, ni aux animaux, ni à l'homme, de manger autre chose que de l'herbe et des fruits. Tuer leur est interdit, car le sang véhicule l'esprit.

L'Univers est alors jugé « bon » — très bon pour l'homme —, mais il cesse de l'être lorsque l'homme, tout en demeurant à l'image de Dieu, cesse d'agir comme s'il était à sa ressemblance. Son infidélité sème la haine et le désordre parmi les créatures. Dieu ne renvoie pas complètement au néant l'œuvre qu'il a créée, mais il propose une nouvelle alliance à Noé et à tous les habitants de son arche, en réglementant la violence. Mais l'homme demeure, hélas, la terreur des vivants, et réciproquement. Il reste, cependant, interdit de consommer le sang, c'est-à-dire d'anéantir symboliquement la vie. D'où l'origine de la viande « casher » des Juifs.

Cet égal respect entre les créatures se retrouve partout dans l'Ancien Testament. Le *Deutéronome* le manifeste par l'interdiction de faire travailler les bœufs le jour du Sabbat. À l'appel de Jonas, tous les habitants de Ninive, hommes et bêtes, obtiennent le pardon par un jeûne unanime. Les *Psaumes* répercutent la louange que toutes les créatures adressent

au Créateur, depuis les étoiles et les vents jusqu'au cèdre le plus haut et à l'herbe la plus humble. Au premier siècle avant J.C., le livre de la *Sagesse* affirme : « Dieu n'a pas fait la mort, il ne se réjouit point de la perte des vivants ; il a tout créé pour que tout subsiste » (1, 13-14).

L'enseignement du Nouveau Testament porte à maturité, par son accomplissement en Christ, ce message de compassion universelle et de délivrance cosmique. Dès la fin de l'*Évangile de Marc*, au jour de l'Ascension, Jésus dit à ses disciples : « Allez par le monde entier et proclamez l'Évangile à toutes les créatures » (16, 15). Il ne dit pas, comme chez *Matthieu* et *Luc*, « à toutes les nations », ce qui impliquerait seulement les hommes. Dans l'*Épître aux Colossiens*, Saint Paul s'exprime de la même façon lorsqu'il incite à ne pas se détourner de l'Évangile, « qui a été proclamé à toute créature sous le ciel » (1, 23).

Saint Paul ne se contente pas de dire, dans l'*Épître aux Romains*, que « toute la création gémit dans les douleurs de l'enfantement, attendant d'être libérée, elle aussi, de la servitude et de la corruption pour entrer dans la liberté et la gloire des enfants de Dieu » (8, 19-22). À l'adresse des *Colossiens*, il édifie une christologie cosmique, dont les siècles qui vont suivre sont loin d'avoir développé toute la splendeur : « C'est en Christ qu'ont été créées toutes choses, en Lui que tous les êtres ont été réconciliés par le sang de sa croix » (1, 15-20). Et de conclure superbement, à l'intention des *Corinthiens* : « Quand toutes choses lui auront été soumises, alors le Fils lui-même se soumettra à Celui qui lui a tout soumis, afin que Dieu soit tout en tous » (I *Cor.*, 15, 28).

Après une telle proclamation de salut universel reprise par Jean dans son *Apocalypse*, avec l'annonce de la « nouvelle terre » et des « nouveaux cieux », il est impossible d'avancer l'idée d'une « mentalité biblique judéo-chrétienne » hostile à la nature. C'est le contraire qui est le vrai : une estime si infinie de la création qu'elle l'éternise et ne dissocie pas sur ce point ultime — la résurrection finale — le sort de l'homme de celui des autres créatures, après le passage par la mort qui purifie l'ensemble de l'œuvre divine empoisonnée par le péché. La Pâque s'étend à tout l'Univers, sous peine d'être amputée de la gloire de son corps cosmique.

### *Depuis Saint-Paul et Saint-Jean*

Depuis Saint Paul et Saint Jean, vingt siècles de christianisme ont repris ce message avec des fortunes diverses et des fidélités plus ou moins grandes. Sur le plan théologique, la christologie cosmique de Paul a été relayée par Irénée au III<sup>e</sup> siècle, lorsqu'il affirme que « le Verbe s'est fait chair et a été suspendu au bois afin de récapituler toutes choses en lui » (Irénée de Lyon, *Contre les hérésies*, Cerf, 1984, p. 625). D'où l'image gigantesque qui domine l'Antiquité chrétienne d'un Arbre de la Croix « ferme

soutien de l'Univers, lien de toutes choses, sur lequel Jésus est fixé par les clous invisibles de l'Esprit et redonne vie et force à toutes choses » (cité par Henri de Lubac, *Catholicisme*, Cerf, 1947, pp. 408-409).

Au VII<sup>e</sup> siècle, le théologien byzantin Maxime le Confesseur exprime en des formules inoubliables ce mystère eschatologique du Christ, « fin antérieure à toute existence », qui « constitue la plénitude où les créatures accomplissent leur retour en Dieu ». Grâce au Nouvel Adam, « la terre entière est sanctifiée en revenant à travers la mort au paradis ». Ainsi se fait la Pâque cosmique, lorsque « le monde total entre totalement dans le Dieu total » (cité par H. et J. Bastaire, *Pour une écologie chrétienne*, Cerf, 2004, pp. 39-40).

Il est intéressant aussi de regarder les commentaires de la *Genèse* auxquels se sont livrés les Pères de l'Antiquité chrétienne (Origène, Basile, Grégoire de Nysse, Cyrille de Jérusalem, Jean Chrysostome, Ambroise, Augustin), le Haut Moyen-Âge (Bède, Alcuin, Raban Maur), le XII<sup>e</sup> siècle roman (Honoré d'Autun, Thierry de Chartres, Abélard), le XIII<sup>e</sup> siècle scolastique (Bonaventure), sous Louis XIV les précepteurs royaux (Fénelon) et, sous la Restauration, les catéchistes romantiques (tels l'abbé Gaume). Exercice classique, interminablement répété, qui consiste à s'émerveiller des beautés sidérales, minérales, végétales et animales de la création, couronnées par la suréminente beauté de l'homme, afin d'y puiser les raisons de comprendre et d'aimer l'Auteur de cette œuvre admirable.

On peut dire que, pendant deux millénaires, le christianisme a vécu dans un état sinon unique, du moins prévalent, d'exaltation amoureuse et d'éréthisme laudatif devant la nature. Quand cette disposition s'estompait ou cessait, il y avait tout simplement hérésie, dénoncée comme telle : manichéisme, catharisme, jansénisme. François d'Assise a figuré un paroxysme dans cette attitude, une accentuation décisive dans le sentiment de fraternité cosmique, mais il ne l'a pas inventé.

On peut penser aussi à un certain nombre de moniales bénédictines, cisterciennes et dominicaines au Moyen-Âge, dont Hildegarde de Bingen au XII<sup>e</sup> siècle. À travers l'histoire chrétienne retentit l'affirmation que la Bonne Nouvelle nous est communiquée d'abord par l'Écriture, mais aussi par le livre de la Nature, si on peut dire ainsi. Ils se répondent l'un l'autre, le second explicitant le premier. Avec l'apparition des sciences modernes au XVII<sup>e</sup> siècle, la séparation entre les deux livres va changer la donne.

### *La science moderne et la « déchristianisation du cosmos »*

Avec l'affaire Galilée commence à s'établir, dans l'esprit de nombre d'Occidentaux, une séparation qui deviendra radicale entre le livre de la Nature et le livre des Écritures, le premier écrit en langage mathématique, le second ne pouvant plus fonder le premier.

Pascal, contemporain de Galilée et de Descartes, est un scientifique croyant très signifiant de ce changement. Se laissant fortement questionner par la nouvelle vision du monde et de la place de l'homme dans l'Univers introduite par les travaux de Copernic et de Galilée, il sera « effrayé » par le silence des espaces infinis. Le cosmos n'étant plus taillé à la mesure de l'homme, il ne lui parle plus de l'ordre du monde voulu par Dieu, lequel devient davantage « Le Dieu caché » du cantique d'Isaïe.

#### CITATIONS DE PASCAL (édition de Brunschvicg) :

« Ce cosmos démesuré, sphère infinie dont le centre est partout, la circonférence nulle part » (72) ;

« L'homme ne sait à quel rang se mettre. Il est visiblement égaré et tombé de son vrai lieu sans pouvoir le retrouver » (427) ;

« Le silence éternel de ces espaces infinis m'effraie » (211) ;

« En regardant tout l'Univers muet, et l'homme sans lumière, abandonné à lui-même, et comme égaré dans ce recoin d'Univers, sans savoir qui l'y a mis, ce qu'il y est venu faire, ce qu'il deviendra en mourant, incapable de toute connaissance, j'entre en effroi » (693) ;

« Je vois ces effroyables espaces de l'Univers qui m'enferment... sans que je sache pourquoi ce peu de temps qui m'est donné à vivre m'est assigné à ce point plutôt qu'à un autre de toute l'éternité qui m'a précédé et de toute celle qui me suit. Je ne vois que des infinités de toutes parts, qui m'enferment comme un atome et comme une ombre qui ne dure qu'un instant sans retour. Tout ce que je connais est que je dois bientôt mourir ; mais ce que j'ignore le plus est cette mort même que je ne saurais éviter » (194) ;

« Car, enfin, qu'est-ce que l'homme dans la nature ? Un néant à l'égard de l'infini, un tout à l'égard du néant, un milieu entre rien et tout. Infiniment éloigné de comprendre les extrêmes, la fin des choses et leur principe sont pour lui invinciblement cachés dans un secret impénétrable, également incapable de voir le néant d'où il est tiré et l'infini où il est englouti. Que fera-t-il donc, sinon d'apercevoir quelque apparence du milieu des choses, dans un désespoir éternel de ne connaître ni leur principe ni leur fin ? Toutes choses sont sorties du néant et portées jusqu'à l'infini. Qui suivra ces étonnantes démarches ? L'auteur de ces merveilles les comprend. Tout autre ne peut le faire » (72) ;

« L'homme n'est pourtant produit que pour l'infinité, mais tout notre fondement craque et la terre s'ouvre jusqu'aux abîmes » (72) ;

« En effet, il n'est pas vrai que tout découvre Dieu et il n'est pas vrai que tout cache Dieu » (156) ;

« Les choses extrêmes sont pour nous comme si elles n'étaient point et nous ne sommes point à leur égard ; elles nous échappent, ou nous à elles. Voilà notre état véritable ; c'est ce qui nous rend incapables de savoir certainement et d'ignorer absolument... Notre raison est toujours déçue par l'inconstance des apparences, rien ne peut fixer le fini entre les deux infinis, qui l'enferment et le fuient » (7).

Pour Pascal, on peut dire que « L'homme-sujet passe infiniment l'homme-espèce »... mais sans négliger pour autant la nature dont il est issu ! Certains en concluront que l'homme-sujet a gagné son combat pour sortir de la nature violente à laquelle il devient étranger... ce qui renforcerait son pouvoir de domination, via les sciences et les techniques !

Descartes et, surtout, Malebranche ne considèrent plus les animaux comme des sortes de machines (pp. 59-60 de l'étude de J. Bastaire : *Pour une écologie chrétienne*).

Bref, après la désacralisation de l'Univers opérée naturellement, par méthode, par la science (bien après celle de la Bible, qui ne confond jamais le Créateur et la création), une sorte de « désanctification », de « profanisation », mais aussi de « déchristianisation » du cosmos a commencé au XVII<sup>e</sup> siècle, pour s'accroître aux siècles suivants. Peut-être cette tendance a-t-elle conduit, y compris des chrétiens, à négliger l'Alliance de Dieu avec l'ensemble de la création et à exploiter la nature, « sous la bannière d'un pieux capitalisme » soutenant le formidable développement technologique du XIX<sup>e</sup> siècle (cf. les positions de Max Weber dans le protestantisme anglo-saxon).

La peur, voire l'opposition, de l'Église catholique, au XIX<sup>e</sup> siècle, vis-à-vis des sciences de la nature (et du scientisme triomphant avec le mythe du progrès scientifique facteur du bonheur de l'homme), l'opposition aux théories de l'évolution également, ont pu aussi renforcer cette idée de « déchristianisation » d'un cosmos devenu très « matériel », de rupture entre le livre de la nature et le livre des Écritures.

Enfin, comme nous le verrons plus loin, le développement du spinozisme et de diverses formes de panthéisme, à partir de ce que les sciences de l'évolution (le transformisme sous toutes ses formes) découvraient, a pu accentuer l'idée fautive d'un mépris du christianisme pour la Nature, comme si seul un panthéisme pouvait réhabiliter le respect de la nature. Les sciences de l'évolution montrent, en effet, ces étonnantes capacités « d'auto-engendrement » de la Nature qui devient, pour certains panthéistes, la Nature-Mère-Matrice-Dieu. Cette valorisation nouvelle de la Nature tend à la re-sacraliser, tout en la « déchristianisant » davantage ! Le développement de la notion de complexité en sciences dures continuera à favoriser cette valorisation de la nature au XX<sup>e</sup> siècle, comme nous le soulignerons plus loin. Arrêtons-nous cependant, tout d'abord,

sur l'apport de Teilhard de Chardin, qui va proposer une relecture de Saint Jean et de Saint Paul à la lumière des sciences de l'évolution.

## De Teilhard de Chardin à la théologie de la création aujourd'hui

### *L'homme de l'évolution et le Christ de Teilhard*

Teilhard de Chardin place toute sa réflexion dans un cadre historique :

- la matière a une histoire : particules élémentaires, atomes, molécules minérales, molécules végétales; elle tend déjà, à la fois, vers l'union et la complexité ;
- les molécules organiques, continuant de s'unir, se structurent en des ensembles toujours plus complexes; c'est la vie, depuis plus de trois milliards et demi d'années ;
- la paléontologie nous apprend qu'au long des millions d'années, la vie n'a cessé de s'organiser en systèmes de plus en plus complexes, de plus en plus autonomes, de plus en plus doués de conscience : « La substance cosmique — dit Teilhard — présente une disposition fondamentale à s'arranger et à s'enrouler sur soi ». C'est la montée de la complexité-conscience, la complexité étant à l'origine de sauts qualitatifs dans lesquels une grandeur change d'aspect, d'état, de nature. Pour Teilhard, comme une « nappe vivante » avait recouvert la terre, la biosphère, une nappe pensante se répand au-dessus d'elle. Teilhard l'appelle la *noosphère*.

Dans ce buissonnement de la vie, le « phénomène humain » est en marche. La paléontologie en retrace le cheminement. Du buisson est sorti, au cours des derniers millions d'années, un rameau tout à fait nouveau : la conscience animale devient capable de se réfléchir, de se prendre pour objet ; l'autonomie devient liberté. Avec l'avènement de la pensée humaine, l'évolution biologique est, en quelque sorte, « sortie de son orbite », pour s'échapper vers l'infini. Mais où ?

Ceci engage à voir plus loin. Pour cela, il faut changer de plan, dit Teilhard : tout comme la matière culmine dans la biogénèse, l'homme se transcende dans la christo-génèse, l'avènement du Christ, Fils de Dieu, mais aussi fils de Marie. L'avènement du Christ vient « suranimer » la nature. L'Incarnation est une rénovation, une restauration de toutes les forces et puissances de l'Univers : le Christ est le centre, la fin de toute la création animée et matérielle. Par lui, tout est créé, sanctifié, vivifié. Ainsi apparaît à Teilhard le « Christ cosmique » :

« Si invraisemblable que cette proposition paraisse, l'Univers ne peut être pensé en pleine cohérence avec les exigences externes et internes de l'anthropogénèse sans prendre la forme d'un milieu psychique convergent. Il s'achève nécessairement vers l'avant, en quelque pôle de super-conscience où se survivent et super-vivent tous les grains personnalisés de conscience. Il culmine en un Point Oméga » (*Œuvres de Teilhard de Chardin*, Seuil, IX, p. 208).

Pour Teilhard de Chardin, l'évolution analysée par les sciences converge vers un point Oméga. Ce point de convergence de l'évolution physique se découvre, pour lui, à partir d'une réflexion sur la science, même s'il est insaisissable par les moyens expérimentaux. Il est pensé dans une perspective d'accomplissement. L'intuition de Teilhard est alors d'assimiler ce point de convergence au Christ en retour, au Christ de la Parousie. Relisant aussi bien le livre de la *Genèse* que celui de l'*Apocalypse* ou les écrits de Saint Paul (comme son *Épître aux Romains*), Teilhard de Chardin parle du Christ cosmique, du Christ-Oméga, point de convergence de l'évolution tout entière. De l'Alpha à l'Oméga, de l'évolution de la matière à la divinisation de l'homme et son entrée dans la Plénitude, c'est l'Amour (créateur) du Père, du Fils et du Saint Esprit qui se manifeste comme la Source et la Fin de toute l'aventure du monde, récapitulée en Christ. Teilhard parle ainsi du « Christ Évoluteur », qui entraîne l'humanité et toute la création vers le Père, au souffle de l'Esprit.

On est en droit de critiquer une telle vision, mais il faut reconnaître qu'elle constitue une perspective qui peut fortement intéresser l'homme de nos jours, en quête de vision d'avenir. Les questions posées demeurent importantes (J.M. Maldamé, *Le Christ et le cosmos*, Desclée, 1993) :

- le point Oméga est-il naturellement donné ? Peut-on scientifiquement l'établir et fonder sur lui une attente qui resterait de l'ordre de la prévision scientifique ?
- y a-t-il une relation physique entre le Christ et le cosmos, comme Teilhard semble le dire ?

Plusieurs éléments clés de la Bible sont aussi à prendre en compte :

- il y a, dans la venue de Jésus au monde, quelque chose de totalement imprévu. Il est à la fois enraciné dans l'histoire d'Israël, le peuple de l'attente (comme Fils de David), mais il vient en même temps d'ailleurs (comme Fils de Marie). Il n'est pas simplement un aboutissement de l'histoire ;
- l'histoire de l'évolution est marquée par une violence omniprésente, qui précède l'homme (et qui a posé bien des questions à Darwin, par exemple). Jésus ne va pas la minimiser (il en sera lui-même victime), ni feindre de l'ignorer. Il entre dans le combat, il la prend sur lui.

Cela conduit à une remise en cause d'une assimilation trop rapide entre la complexification croissante de l'Univers et la notion de progrès : on ne peut confondre une complexification croissante qui donne, en effet, de nouvelles possibilités, avec la manière d'utiliser ces nouvelles possibilités et d'en faire des éléments d'un réel progrès de l'humanité. Les grandes questions d'éthique sont là pour nous le rappeler, avec :

- la possibilité pour l'homme de faire sauter la planète (et d'interrompre ainsi l'évolution, du moins pour l'humanité sur terre) ;
- la possibilité de modifier par la génétique l'évolution du vivant dans un sens qui n'est pas forcément un signe de progrès pour l'humanité.

Il revient, en quelque sorte, à l'homme de s'inscrire dans la formidable énergie créatrice de l'évolution, en donnant sens à cette complexification croissante et à l'utilisation des possibilités nouvelles qu'elle permet.

Dans ce combat éthique, qu'est-ce qui peut fonder l'Espérance en l'avenir de l'humanité ? On voit bien que l'évolution physique ne suffit pas et que la responsabilité des hommes est largement engagée. Qu'est-ce qui pourra éclairer la conscience humaine sur ce chemin ? Un nouvel humanisme, de nouvelles sagesse, les traditions religieuses ? De toute façon, on ne peut se passer ici de la dimension spirituelle de l'homme, pour fonder les choix éthiques. Encore faut-il que cette dimension spirituelle ne soit pas vécue de manière seulement individuelle, mais qu'elle puisse collectivement se fonder dans une expérience qui en dévoile toute l'intelligence. Foi et Raison sont plus que jamais complémentaires sur ce chemin.

À la question : Pourquoi l'Univers existe-t-il ?, le chrétien répond qu'il a un auteur, Dieu, qui l'a posé dans l'être et accompagne son devenir dans le respect de ses déterminations et de son fonctionnement. La meilleure connaissance que les sciences de l'Univers donnent de la place de l'homme dans l'Univers et le renouvellement du sens du mot *cosmos* permettent d'entendre le terme de création avec plus de profondeur. L'homme vient au terme actuel de la genèse du cosmos et de la montée de la vie. Son corps est comme un microcosme et son âme est ouverture à la liberté, à la gratuité, à la générosité, mais également siège d'un combat entre vie et mort, entre violence et non violence. En ce sens on peut dire que l'homme semble récapituler l'Univers :

« L'acte créateur ne s'intercale pas dans la chaîne des antécédents. Il se pose sur l'Univers pris dans toute son extension et toute sa durée... Dieu n'a pas voulu isolément le soleil, la terre, les plantes, l'homme. Il a voulu son Christ — et, pour avoir son Christ, il a du créer le monde spirituel, les hommes notamment, sur qui germerait le Christ ; pour avoir l'homme, il a du lancer l'énorme mouvement de la vie organique — qui est un organe essentiel du monde — et afin que celle-ci naquît, il a fallu l'agitation cosmique tout entière. »

Avec cette vision, Teilhard inscrit l'aventure de l'humanité dans l'histoire du cosmos, bien avant qu'on ne parle de la théorie du *Big Bang*, respectant ainsi les théories de l'évolution, tout en soulignant l'originalité et les spécificités de l'homme dans l'Univers. Plus même : avec Teilhard, c'est à travers l'unicité de l'homme que la cosmo-génèse peut se comprendre. Aussi, ce qui compte pour Teilhard, ce n'est pas tant l'évolution jusqu'à l'homme dans ses détails, mais bien l'avenir de l'homme et le sens de sa destinée dans le cosmos (d'où son peu d'intérêt pour les mécanismes mêmes de l'évolution). « L'homme en Avant » !

« Depuis Galilée, il pouvait sembler que l'homme eût perdu toute position privilégiée dans l'Univers, sous l'influence grandissante des forces combinées d'invention et de socialisation. Le voilà en train de reprendre la tête, non plus dans la stabilité, mais dans le mouvement, non plus en qualité de centre, mais sous forme de flèche du monde en croissance. Néo-anthropocentrisme non plus de position, mais de direction de l'évolution. » (*Cœuvres de Teilhard de Chardin*, Seuil, III, p. 349).

« Un Univers qui continuerait à agir laborieusement dans l'attente consciente de la mort absolu, ce serait un monde stupide, un monstre d'esprit, autant dire une chimère. Donc le monde porte en soi les garanties d'un succès final, dès lors qu'il admet en lui de la pensée. Un Univers ne saurait plus être simplement temporaire, ni à évolution limitée. Il lui faut < par structure > émerger dans l'absolu. » (*Cœuvres de Teilhard de Chardin*, Seuil, VI, p. 450).

Un tel refus de l'absurde par Teilhard mérite d'être approfondi aujourd'hui. Il représente une magnifique proposition de sens pour nous, au carrefour de la science de l'évolution et du christianisme. Elle conduit à découvrir — ou redécouvrir — un Dieu créateur au cœur de l'évolution, capable de désirer, de soutenir, d'accompagner de l'intérieur (et non pas comme un dieu interventionniste) les effets cosmiques et planétaires des atomes, des cellules, des vivants et, finalement, des hommes.

« Physiquement et littéralement, le Christ est celui qui consomme l'Univers : la plénitude du monde ne s'achevant que dans la synthèse finale où une conscience suprême apparaîtra sur la complexité totale suprêmement organisée par Lui. Le Christ étant le principe organisateur de cette harmonisation, tout l'Univers se trouve, *ipso facto*, marqué de son caractère, dessiné par son choix, animé de sa forme. Physiquement et littéralement, enfin, puisqu'en Lui toutes les lignes du monde convergent et se nouent ensemble, c'est Lui qui, à l'édifice entier de la Matière et de l'Esprit, donne sa consistance. Et c'est en

Lui, par suite, « tête de la Création », que s'achève et culmine, à des dimensions universelles et à des profondeurs surnaturelles, et en harmonie, cependant, avec tout le passé, le fondamental processus cosmique de Céphalisation... Christ-Oméga. Donc Christ-Animateur et Collecteur de toutes les énergies biologiques et spirituelles élaborées par l'Univers. Finalement, donc, Christ-Évoluter. Telle est la figure, explicitée et généralisée, sous laquelle le Christ-Rédempteur et Sauveur se présente désormais à notre adoration. »

Pour Teilhard, l'incarnation du Christ ne se rapporte pas seulement au péché, pour le détruire, mais d'abord à l'identité de l'homme dans l'Univers que Dieu veut s'affilier :

« Le Rédempteur n'a pu pénétrer l'étoffe du Cosmos, s'infuser dans le sang de l'Univers, qu'en se fondant d'abord dans la matière pour renaître ensuite. La petitesse du Christ dans son berceau et les petites bien plus grandes qui ont précédé son apparition parmi les hommes ne sont pas seulement une leçon morale d'humilité. Elles sont d'abord l'application d'une loi de naissance et, consécutivement, le signe d'une emprise définitive de Jésus sur le monde. C'est parce que le Christ s'est inoculé dans le monde comme un élément du monde qu'il n'est plus séparable de la croissance du monde, tellement incrusté dans le monde visible qu'on ne saurait plus l'en arracher désormais, qu'en ébranlant les fondements mêmes de l'Univers. » (IX, p. 89)...

« Il ne fallait rien moins que les labeurs anonymes et effrayants de l'homme primitif, et la longue beauté égyptienne, et l'attente inquiète d'Israël, et le parfum lentement distillé des mystiques orientales, et la sagesse cent fois raffinée des Grecs, pour que sur la tige de Jessé et de l'humanité la fleur pût éclore. Toutes ces préparations étaient cosmiquement, biologiquement nécessaires pour que le Christ prit pied sur la scène humaine, et tout le travail était mû par l'éveil actif et créateur de son âme, en tant que cette âme humaine était élue pour animer l'Univers. Quand le Christ apparut entre les bras de Marie, il venait de soulever le monde... En essayant sur soi la mort individuelle, en mourant saintement la mort du monde, le Christ a opéré ce retournement de nos vues et de nos craintes. Il a vaincu la mort. Il lui a donné physiquement la valeur d'une métamorphose et, avec lui, par elle, le monde a pénétré en Dieu. » (IX, p. 90)...

« La Résurrection, nous cherchons trop à la regarder comme un événement apologétique et momentané, comme une petite revanche individuelle du Christ sur le tombeau. Elle est bien autre chose et bien plus que cela. Elle est un évènement cosmique. Elle marque la

prise de possession effective par le Christ de ses fonctions de centre universel. » (IX, p. 92)...

« Quelque immense que se découvre le monde, la figure de Jésus ressuscité doit couvrir le monde. Telle est, depuis Saint Jean et Saint Paul, la règle fondamentale de la théologie. » (X, p. 222)

Ainsi, l'économie de l'Univers, pour reprendre le mot *économie* dans le sens de Saint Irénée, est vue avec Teilhard comme un processus d'amorisation croissante à travers le Christ-Évoluteur, celui qui fait passer de la mort à la vie. L'Amour, pour Teilhard, c'est la plus universelle, la plus formidable et la plus mystérieuse des énergies cosmiques :

« « Aimez-vous les uns les autres en reconnaissant au fond de vous le même Dieu naissant. » Cette parole, prononcée d'abord il y a deux mille ans, tend à se découvrir aujourd'hui comme la loi structurelle essentielle de ce que nous appelons Progrès et Évolution. Elle entre dans le domaine scientifique des énergies cosmiques et des lois nécessaires. » (*Être Plus*)

De cette vision du réel se dégage une mystique de l'action humaine qui est l'un des apports les plus forts de Teilhard :

« Dans l'action, j'adhère à la puissance créatrice de Dieu ; je coïncide avec elle, j'en deviens non seulement l'instrument, mais le prolongement vivant... Au nom de notre foi, nous avons le droit et le devoir de nous passionner pour les choses de la terre : il y va du triomphe de Dieu ! L'intimité de notre union à Dieu est en fonction de l'achèvement précis que nous donnerons à la moindre de nos œuvres... Il nous attend à chaque instant dans l'action, dans l'œuvre du moment. Il est en quelque sorte au bout de ma plume, de mon pic, de mon pinceau, de mon aiguille, de mon cœur, de ma pensée. C'est en poussant jusqu'à son dernier fini naturel le trait, le coup, le point auquel je suis occupé que je saisirai le But dernier auquel tend mon vouloir profond... Ainsi, artistes, ouvriers, savants, quelle que soit notre fonction humaine, nous pouvons, si nous sommes chrétiens, nous précipiter vers l'objet de notre labeur comme vers une issue ouverte à l'accomplissement de nos êtres. »

Cette valorisation du travail de l'homme n'est pas sans rappeler les paroles que le prêtre prononce à l'offertoire de l'Eucharistie : « Tu es béni, Dieu de l'Univers, toi qui nous donnes ce pain, fruit de la terre et du travail des hommes... ce vin, fruit de la vigne et du travail des hommes... Nous te les présentons : ils deviendront pour nous le pain de la vie, le vin du Royaume éternel. » On peut lire en ce sens la magnifique prière de Teilhard, prêtre et scientifique, dans sa « messe sur le monde ».

Notre responsabilité d'hommes est plus que jamais sollicitée dans le domaine éthique : « Plus le pouvoir s'accroît de manipuler la Matière inerte et vivante, plus (et dans les mêmes proportions) doit grandir notre soin anxieux de ne fausser ni violenter aucun élément de conscience réfléchi autour de nous », dit Teilhard dans une correspondance de 1947. C'est aussi à partir de là que l'on peut comprendre l'une de ses formules les plus fameuses : « Communier au devenir est devenu ma formule de prédilection, la formule de la vie ». L'homme est à la fois comme « porté » par un dynamisme créateur manifesté par la montée de la complexité et il lui appartient de s'inscrire dans un mouvement d'amorisation et de fraternité mondiale qui lui est gratuitement proposé, mais qu'il peut aussi refuser. On retrouve ici combien le sens du mot *créer* réservé à Dieu dans la Bible et qui signifie « séparer » est d'importance : cette séparation biblique est créatrice de différence, de relation et de responsabilité !

Teilhard est un témoin courageux, fidèle au Christ et à l'Église, qui nous appelle à comprendre les événements « du dedans », entre l'Alpha et l'Oméga, dans la dynamique des Pâques. Un témoin qui nous invite au « courage d'être », à « être plus ». Cet appel ne saurait que résonner de manière forte pour nous aujourd'hui, notamment devant les chances, mais aussi les risques et les peurs que suscitent les trois grandes révolutions de ces dernières décennies :

- la mondialisation de l'économie, déterritorialisée, échappant au contrôle des états et autres organismes mondiaux ;
- la révolution informatique, avec cyberspace, Internet et virtuel, entraînant un déplacement de beaucoup d'activités humaines ;
- la révolution génétique et le décryptage du génome, permettant à l'homme, pour la première fois dans son histoire, de transformer les espèces, y compris humaine.

Ces trois révolutions jouent du reste en synergie, ce qui les rend encore plus puissantes et incontrôlables ! Devant cela, on pourrait entrer dans le fatalisme du « on ne peut rien faire », fatalisme favorable à tous les extrémistes politiques ou religieux. Teilhard nous appelle, par sa vie et sa vision, à « être déterminés », à « choisir d'être au monde », avec lucidité, dans la fidélité au Christ, en société, en Église, et non pas de manière individualiste.

Lorsque Teilhard de Chardin parle du Dieu Créateur, il dit : « Dieu fait le monde se faire », reprenant par là une vision très développée chez Thomas d'Aquin sur l'action de Dieu (*Somme contre les Gentils*, édition de Cerf, 1993, pp. 548 et suivantes). L'action de Dieu est totale, productrice de tout l'être, alors que l'action des corps naturels est limitée et ne peut que transformer ce qui est déjà donné. L'action de Dieu respecte l'ordre naturel ; Dieu n'est pas un « interventionniste » !

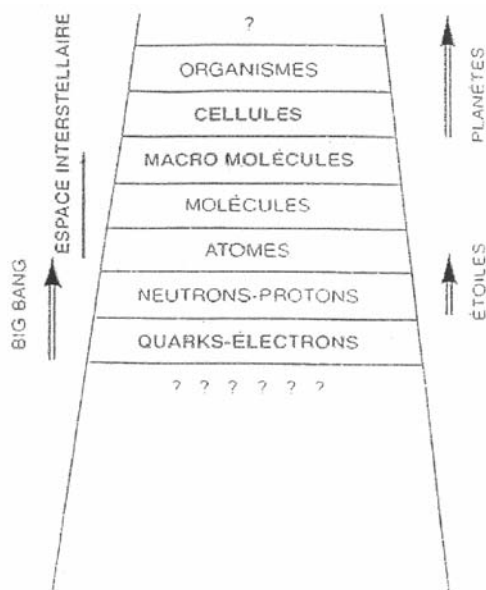
Au contraire, l'affirmation de l'autonomie des créatures est fondée sur la reconnaissance de la transcendance de Dieu qui seul peut agir sans fausser ce qu'il concourt à faire exister. Thomas d'Aquin indique ainsi que l'action de Dieu n'est pas seulement un concours anonyme, mais qu'elle est orientée par une fin. Comme il reçoit de la tradition que l'homme est en tête de l'Univers, il pense que, d'une manière toute spéciale, Dieu oriente tous les phénomènes naturels qui aboutissent à l'homme, sans pour autant « intervenir » et modifier les lois de la nature. Dieu donne aux vivants de progresser selon leurs lois.

Avec Teilhard de Chardin et bien d'autres, on peut dire que les théories de l'évolution permettent de mieux comprendre comment l'homme a été voulu de manière spéciale et comment l'action de Dieu l'a fait apparaître au cours d'une longue histoire. C'est une vision scientifique et théologique qui est ici exprimée, non pas une démonstration scientifique d'une vérité théologique (pas de concordisme). La singularité de l'homme (et de la socialisation) ne brise pas la continuité de l'évolution, mais en marque un seuil décisif.

Avec Teilhard, l'autonomie des créatures est montrée tout en illustrant la « création pour le Logos », un thème important dans la pensée chrétienne (Saint-Paul et Saint-Jean). La présence du Logos (Christ-Évolutif) dans l'histoire en dévoile le sens et donne une clé pour l'intelligence de la vie. Dans le mouvement des vivants vers leur plénitude, il y a un dynamisme que la notion d'évolution permet de souligner. Par un autre chemin, la théologie du Logos y reconnaît un vouloir fondamental. Elle lui donne un sens : celui de la rencontre de Dieu et du monde créé. L'achèvement de la création a lieu dans l'être humain, libre et conscient, à qui est remis l'avenir au souffle d'une Parole créatrice qui appelle à l'Alliance.

### *Les phénomènes d'auto-organisation et la « nouvelle alliance » de l'homme avec la nature*

Le monde a une histoire, voilà l'une des plus grandes découvertes du XX<sup>e</sup> siècle, histoire dans laquelle se situe l'évolution de la matière inerte puis du vivant, jusqu'à l'homme notamment, par une montée de la complexité (voir schéma de la pyramide de la complexité). Les études modernes de physique, d'astrophysique, de biologie et des sciences cognitives reposent souvent la question de l'originalité, de la singularité de l'homme (le seul à penser le monde !) dans cette grande évolution de la matière inerte et de la matière vivante. L'évolution suit une « ligne de crête », en permettant les processus d'auto-organisation de la matière et du vivant, avec un rôle très discuté joué par le hasard et qui permet une « irréversibilité constructrice » de nouveautés.



*Pyramide de la complexité  
(Hubert Reeves)*

La vie correspond à un processus physico-chimique hors d'équilibre, dont le vieillissement manifeste l'irréversibilité. Développée depuis une cinquantaine d'années, la thermodynamique du non-équilibre étudie les systèmes maintenus hors d'équilibre par les contraintes qu'exerce sur eux le milieu environnant (telle une cellule vivante dans le corps humain). L'exemple le plus connu est celui des cellules de convection de Bénard, qui apparaissent quand on chauffe par le bas une couche de liquide placée dans un champ de pesanteur. Dès que la différence de température entre le haut et le bas de la cellule dépasse un certain seuil, le liquide se met en mouvement et une structure convective s'établit. Si l'on maintient le non-équilibre en continuant à apporter de la chaleur, les cellules de convection prennent une forme géométrique bien précise (des cellules hexagonales), de sorte qu'un ordre macroscopique intervient. On dit que de l'ordre (chimique) apparaît au sein du désordre. De tels systèmes, qu'on appelle dissipatifs (d'énergie) sont fréquents en physique, chimie et biologie.

Lorsque les systèmes sont hors d'équilibre, les moindres fluctuations (de type thermique, par exemple) peuvent l'entraîner à adopter des comportements radicalement nouveaux, comme l'émergence d'un ordre macroscopique. De manière aléatoire, le système est amené vers des états où la matière est ordonnée : ce sont les structures auto-organisées. Dans la thermodynamique classique, on s'était habitué à l'idée de mort thermique

irréversible. Pourtant, dans les systèmes hors d'équilibre, l'irréversible se conjugue avec le devenir et l'évolution : on parle d'auto-organisation. Cela accroît le degré de complexité des systèmes, comme celui des cellules vivantes.

L'histoire de l'Univers et de la vie nous présente une montée de la complexité, comme Teilhard de Chardin en avait eu l'intuition (on parle maintenant de pyramide de la complexité, de seuils de complexité). Cela aurait été impossible si tout se passait près de l'équilibre et sans dissipation d'énergie. Ainsi, l'ordre et le désordre, le régulier et l'irrégulier, le prévisible et le non prévisible, se conjuguent pour créer la complexité. Dans une structure complexe, l'ordre est dû à l'existence d'interactions et le désordre permet de rapprocher les constituants du système pour les mettre en interactions. Du coup, dans les systèmes complexes se fait jour une dialectique entre le tout (l'ensemble du système) et les parties. Le tout est alors plus que la somme des parties : la cellule est plus qu'un simple agrégat de molécules. Dans le tout émergent des propriétés nouvelles dont sont dépourvus les constituants, les parties. Le tout est doté d'un dynamisme organisationnel. La vie peut se définir comme un faisceau de qualités émergentes (l'auto-reproduction, par exemple). Elle contient simultanément un élément d'ordre, représenté par le programme génétique, par exemple, et un élément de désordre dégénératif. En ce sens, la mort est inséparable de la vie et l'organisation du vivant est en fait une réorganisation permanente.

Écoutons ce que Prigogine, scientifique agnostique, prix Nobel, dit de ce phénomène :

« La science des processus irréversibles a réhabilité au sein de la physique la conception d'une nature créatrice de structures actives et proliférantes... L'irréversibilité est source d'ordre, créatrice d'organisation... L'homme, dans sa singularité, n'était certainement ni appelé, ni attendu par le monde. En revanche, si nous assimilons la vie à un problème d'auto-organisation de la matière évoluant vers les états les plus complexes, alors, dans des circonstances bien déterminées... la vie est prévisible dans l'Univers, y constitue un phénomène aussi naturel que la chute des corps... C'est pourquoi physique et métaphysique se rencontrent aujourd'hui pour penser un monde où le processus, le devenir, serait constitutif de l'existence physique. » (Ilya Prigogine et Isabelle Stengers, *La Nouvelle Alliance*, NRF, Paris, 1979).

Une sorte de « Nouvelle Alliance » de l'homme avec la nature dont il est issu émerge dans une telle vision. La nature est vue, à travers cette capacité d'auto-engendrement, comme la Matrice, la Mère... Les tenants

du Nouvel Âge en feront un dieu (et non le produit du hasard). Dans cette vision de type panthéiste, le respect de la nature et le respect de l'homme vont ensemble ! La fameuse « séparation » biblique entre la créature et son Créateur est pourtant en profonde opposition avec une telle vision. Elle a pu ainsi apparaître comme un « mépris » de la nature de la part de la mentalité judéo-chrétienne moderne, au détriment des questions écologiques (alors qu'elle est, au contraire, créatrice de responsabilité !). On voit pourtant combien la vision de Teilhard de Chardin, sans en faire un absolu, articule l'homme, le cosmos et le Christ d'une manière telle que l'argument d'un christianisme anti-écologique ne tient plus !

### *Le respect de la création et l'écologie humaine*

S'il y a rencontre, par le Logos, entre Dieu et le monde créé, remis entre les mains de l'homme, la manière dont l'homme respecte la création dans son dynamisme (son élan vital) est capitale. Ce respect est celui de la nature dont l'homme est issu biologiquement, tout autant que celui de « l'autre » pour une véritable « écologie humaine ». C'est ce qu'exprime plus récemment le pape Jean-Paul II dans les textes qui s'ensuivent. Sans l'ombre d'une hésitation, l'Église appelle à respecter le milieu naturel dans lequel nous vivons et appelle à la responsabilité :

« À côté du problème de la consommation, la question de l'écologie, qui lui est étroitement connexe, inspire autant d'inquiétude. Saisi par le désir d'avoir et de jouir plus que par celui d'être et de croître, l'homme consomme d'une manière excessive et désordonnée les ressources de la terre et sa vie même. À l'origine de la destruction insensée du milieu naturel, il y a une erreur anthropologique, malheureusement répandue à notre époque. L'homme, qui découvre sa capacité de transformer et, en un sens, de créer le monde par son travail, oublie que cela s'accomplit toujours à partir du premier don originel des choses fait par Dieu. Il croit pouvoir disposer arbitrairement de la terre, en la soumettant sans mesure à sa volonté, comme si elle n'avait pas une forme et une destination antérieures que Dieu lui a données, que l'homme peut développer, mais qu'il ne doit pas trahir. [...] En cela, on remarque avant tout la pauvreté ou la mesquinerie du regard de l'homme, plus animé par le désir de posséder les choses, que de les considérer par rapport à la vérité, et qui ne prend pas l'attitude désintéressée, faite de gratuité et de sens esthétique, suscitée par l'émerveillement pour l'être et pour la splendeur qui permet de percevoir dans les choses visibles le message de Dieu invisible qui les a créées. Dans ce domaine, l'humanité d'aujourd'hui doit avoir conscience de ses devoirs et de ses responsabilités envers les générations à venir. » (Jean-Paul II, *Centesimus Annus*, p. 38)

Cependant, l'Église appelle à une véritable écologie humaine :

« Alors que l'on se préoccupe à juste titre, même si on est bien loin de ce qui serait nécessaire, de sauvegarder les habitats naturels des différentes espèces animales menacées d'extinction, parce qu'on se rend compte que chacune d'elles apporte sa contribution particulière à l'équilibre général de la terre, on s'engage trop peu dans la sauvegarde des conditions morales d'une « écologie humaine » authentique. [...] La première structure fondamentale pour une « écologie humaine » est la famille, au sein de laquelle l'homme reçoit des premières notions déterminantes concernant la vérité et le bien, dans laquelle il apprend ce que signifie aimer et être aimé et, par conséquent, ce que veut dire concrètement être une personne. [...] Dans ce domaine, le génie de l'homme semble s'employer plus à limiter, à supprimer ou à annuler les sources de la vie, en recourant même à l'avortement, malheureusement très diffusé dans le monde, qu'à défendre et à élargir les possibilités de la vie elle-même. » (Jean-Paul II, CA, pp. 38-39)

L'Église estime l'effort des hommes pour améliorer leurs conditions de vie :

« Pour les croyants, une chose est certaine : considérée en elle-même, l'activité humaine, soit individuelle, soit collective, ce gigantesque effort par lequel les hommes, tout au long des siècles, s'acharnèrent à améliorer leurs conditions de vie, correspond au dessein de Dieu. L'homme, créé à l'image de Dieu, a reçu la mission de soumettre la terre et tout ce qu'elle contient, de gouverner le cosmos en sainteté et justice et, en reconnaissant Dieu comme Créateur de toutes choses, de Lui référer son être ainsi que l'Univers. [...] Cet enseignement vaut aussi pour les activités les plus quotidiennes. Car ces hommes et ces femmes qui, tout en gagnant leur vie et celle de leur famille, mènent leurs activités de manière à bien servir la société, sont fondés à voir dans leur travail un prolongement de l'œuvre du Créateur, un service de leurs frères, un apport à la réalisation du plan providentiel dans l'histoire. » (Vatican II, *Gaudium et Spes*, p. 34)

« La disponibilité toujours nouvelle des biens matériels, tout en répondant aux besoins, ouvre de nouveaux horizons. Le danger de l'abus de consommation et l'apparition des besoins artificiels ne doivent nullement empêcher l'estime et l'utilisation des nouveaux biens et des nouvelles ressources mis à notre disposition ; il nous faut même y voir un don de Dieu et une réponse à la vocation de l'homme, qui se réalise pleinement dans le Christ. » (Jean-Paul II, *Sollicitudo Rei Socialis*, 1987, p. 29)

## Conclusion

Chesterton disait: « La nature n'est pas une mère, elle est une sœur et même une sœur cadette, une petite sœur dont on peut rire et que l'on peut aimer » (*Orthodoxie*, Gallimard, coll. « Idées », 1984, p. 17). Claudel dira aussi : « La création tout entière, du séraphin au minéral, est homogène et reliée dans toutes ses parties par le lien de la charité » (*Présence et Prophétie*, PUF, 1942, p. 238).

Face à la nature, la perspective chrétienne du Logos, Verbe créateur et rédempteur de toutes choses, Christ Alpha et Oméga, conduit à poursuivre et accomplir la sauvegarde et le salut de la création. La sauvegarde est précisément le but de l'écologie pour une gestion plus responsable de la planète.

Le salut est une autre écologie, si l'on peut dire ainsi, celle qui a pour objet le passage définitif de tout l'Univers en Dieu, avec une exigence radicale de charité. L'une et l'autre sont intimement liées pour le chrétien.

# Determinism and Free Will

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## Introduction

Deterministic doctrines have been questioned before, notably by Popper (Karl R. Popper, [1982]). He distinguished religious, scientific, and metaphysical doctrines of determinism. And he considered the scientific one not even worthy of that epithet, a reason why he consistently put it between quotes: “scientific” determinism. My approach is not simply to repeat or take issue with his arguments. Popper admitted to be “deeply interested in the... defence of human freedom” (Karl R. Popper, [1982], p. xxi), but, at the same time, he avoided the term *will*, “lest discussing it sidetrack us into sterile problems of terminology” (Karl R. Popper, [1982], p. 113). It is my opinion that the term *free will*, as any other term, derives its meaning from its correlation with human experience. The experience ought to be discussed.

## Scientific Determinism

A famous formulation of scientific determinism is due to Laplace, to the effect that:

“All the effects of nature are only the mathematical consequences of a small number of immutable laws” (E.T. Bell, [1937], chapter 11);

“We ought... to regard the present state of the universe as the effect of its anterior state and as the cause of the one which is to follow.

Assume... an intelligence which could know all the forces by which nature is animated, and the states at an instant of all the objects that compose it; ...for [this intelligence] nothing could be uncertain; and the future, as the past, would be present to its eyes."<sup>1</sup>

It is not evident from these quotes that Laplace would have included mankind in his deterministic view and that he, therefore, would have rejected the existence of a free will. Indeed, I believe that Laplace did not mean to extend his deterministic doctrine to himself, that is to say to an "intelligence". He was writing about "the effects of nature", to which, in his mechanistic worldview, intelligence does not belong. But, even when applied to the physical world exclusive of intelligent man, much can be said against his deterministic doctrine.

*The "laws of nature" are not part of nature; they are "free creations of the human mind".*

Popper writes that a deterministic view of the physical and biological sciences "was held by physicists, practically without exception, until 1927, and by Einstein, it seems, almost until his death in 1955" (Karl R. Popper, [1982], p. 2). Yet Einstein provides me with my first objection against scientific determinism. Consider what he said about nature's laws:

"The concepts which arise in our thought and in our linguistic expressions are all — when viewed logically — the *free creations* of thought which cannot *inductively* be gained from *sense experiences*. This is not so easily noticed only because we have the habit of combining certain concepts and conceptual relations (propositions) so definitely with certain sense experiences, that we do not become conscious of the gulf — logically unbridgeable — which separates the world of sensory experiences from the world of concepts and propositions"<sup>2</sup>, and:

"Concepts and propositions get 'meaning', *viz.* 'content', only through their connection with sense-experiences. The connection of the latter with the former is purely intuitive, not itself of a logical nature. The degree of certainty with which this connection, *viz.* intuitive combination, can be undertaken, and nothing else, differentiates empty phantasy from scientific 'truth'. *The system of concepts is a creation of man together with the rules of syntax, which constitute the*

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1. English translation from *Essai philosophique sur les probabilités* (1819), as quoted by Karl R. Popper in his preface to *The Open Universe* (1982).
  2. Albert Einstein (1954), in *Remarks on Bertrand Russell's Theory of Knowledge*.

*structure of the conceptual systems.* Although the conceptual systems are logically entirely arbitrary, they are bound by the aim to permit the most nearly possible certain (intuitive) and complete co-ordination with the totality of sense-experiences..." [my italicized print — T.v.B.]. (Abraham Pais, [1994], p. 131)

Einstein does not use Laplace's words, *immutable laws of nature*. For Laplace, these laws seem to have been God-given. Indeed, his determinism can be seen as "the result of replacing the idea of God by the idea of nature, and the idea of divine law by that of natural law" (Karl R. Popper, [1982], p. 5). But, if the laws of nature are creations of the human mind, they are neither immutable, nor God-given. Instead, they are part of human history, they are culture. The shift from Laplace's to Einstein's view is nothing less than a change of paradigm. A change of paradigm needs time to catch on, yet Popper dates it in 1927. Why this year? It is the year of Heisenberg's paper on the uncertainty principle and of Bohr's first statement of the complementarity concept. Two leading physicists proposing revolutionary ideas on the laws of nature. The development of modern physics made a change of paradigm inevitable.

Unfortunately, this change of paradigm has not (yet) been followed by the general public, nor by most writers of textbooks. In their textbooks, the laws of nature are still presented as facts, not as human inventions, and thereby Laplace's view is perpetuated. Hence the endless and futile discussions on the incompatibility of scientific truth with other truths, such as are proclaimed by religion. If we could agree that *both* kinds of truths are not creations of God, but creations of the human mind, if we could accept that both science and religion are culture, then we would have a fruitful basis for dialogue.

***The application of the laws of nature to events  
beyond our direct experience is hypothetical.***

The new paradigm was in the making before 1927. Henri Poincaré (1854-1912) should be considered a precursor of Einstein in connection with the special theory of relativity, as well as in connection with his view on the laws of nature. In his book, *La Science et l'Hypothèse*, which had been read by Einstein (Abraham Pais, [1982], p. 165), Poincaré writes:

"[A good experiment] is that which teaches us something more than an isolated fact. It is that which enables us to predict and generalize. Without generalization, prediction is impossible. The circumstances under which one has operated will never again be reproduced simultaneously. The fact observed will never be repeated. All that

can be affirmed is that, under analogous circumstances, an analogous fact will be produced. To predict it, we must therefore invoke the aid of an analogy — that is to say that even at this stage, we must generalize” (Henri Poincaré, [1905], p. 142);

“Every generalization is a hypothesis. Hypothesis therefore plays a necessary role, which no one has ever contested. Only, it should always be as soon as possible submitted to verification” (Henri Poincaré, [1905], p. 150).

If every prediction is hypothetical, how can one say that the prediction determines the future? The future is the verification of the prediction. In his preface, Poincaré puts it this way:

“The method of the physical sciences is based upon the induction which leads us to expect the recurrence of a phenomenon when the circumstances which give rise to it are repeated. If all the circumstances which give rise to it could be simultaneously reproduced, this principle could be fearlessly applied; but this never happens; some of the circumstances will always be missing. Are we absolutely certain that they are unimportant? Evidently not! It may be probable, but it cannot be rigorously certain” (Henri Poincaré, [1905], p. xxvi).

Yet the general public and, indeed, many scientists still adhere to the view that the generalizations, the laws of nature, are fact. They remain unconscious of “the gulf... that separates the world of sensory experiences from the world of concepts and propositions” (Einstein). Our thoughts are only models of the reality which we experience. These models “must be ludicrously simple compared with the immense, complex, ever-changing universe in which they exist” (Donella H Meadows *et al.*, [1992], p. 105).

*When we apply the laws of nature to events beyond our direct experience, we do not apply them to nature, but to a limited model of a part of nature: to a closed system. But closed systems exist in reality only to the extent that we succeed in isolating parts of nature.*

In secondary school science class, pupils learn to apply the laws of conservation of energy and momentum to collision problems. They apply them to a “universe” which consists of only two billiard balls and nothing else. In that way, the conservation laws are *defined into* the problem. The universe of the billiard balls has no environment that might cause change. Here are Poincaré’s circumstances which can be exactly repeated at will:

*in a closed system.* And, if any change does take place in a closed system, it must have been “caused” by something outside the system. This is what is stated by Newton’s first law: “Every body continues in its state of rest or of uniform motion in a straight line unless it is compelled to change this state by forces impressed on it”.

Closed systems are an invented way of looking at nature, which has been very fruitful in the development of science. The success of science has accustomed people to thinking that such systems exist in nature. But they exist only to the extent that we succeed in isolating parts of nature from their environment. Because in the environment there will always be some unique circumstances.

The prediction on the colliding billiard balls will be verified only if we succeed in realizing a closed system on the billiard table. The influence of the walls of the room and of the moon may probably be neglected, but also friction must be negligible, the initial movement of the balls must be purely translational, and none of the human bystanders must interfere.

Consider experiments intended to prove the conservation of energy in the form of heat, for instance on heat transfer. They are difficult to perform with accuracy because it is difficult to prevent heat exchange with the environment, to isolate the experimental setup.

Or consider an engineer designing and building a bridge. He has to predict through his calculations that the bridge will not collapse under the expected load. But this is not enough. He must also test the materials and supervise the building process in order to make certain that no flaws invalidate his prediction. He constructs the validation of his prediction.

*It is a mistake to reason about our life experience as if our life were a closed system. Seen from the correct perspective, that is from ourselves, we are open systems.*

If the treatment of physical events as occurring in closed systems is so successful, are we justified to apply the same method to humans, to human society, to the universe as a whole? Is it possible to isolate man from his environment? Is the universe a closed system?

We live our lives in the universe, we are ourselves part of the universe, as far as we know each of us a very small part. But we do not know the universe, what we know is our experience of it. About our experience we reason, we build concepts and models which we call our knowledge. But this knowledge is only partial, it can never be complete, as we live only a short time in a small corner of what we call the universe. Even the accumulated knowledge of generations covers only a small part of the age and extent of the universe.

Therefore, I consider it a mistake to think of the universe as a closed system. We cannot step outside the universe and, in doing so, reduce it to a closed system. From where we are, as far as our experience goes, the universe is an open system. Living as we do inside the universe, we have no experience of any boundaries. Therefore, we must think of the system “man in the universe” as an open system. It is open outside of ourselves, as well as inside ourselves.

Outside ourselves our experience of the universe is open-ended. We may postulate an ultimate cause or prime mover beyond the stars, at the beginning of it all or in the innermost workings of the atoms, but these are not the reality of our experience. They are creations of our mind, which cannot be taken as evidence that “man in the universe” is a closed system. There is much controversy about a creator God or a Big-Bang theory. Neither should lead us to consider the universe and ourselves within it as a closed system. Personally, I prefer the Big-Bang theory, because it is “most nearly possible co-ordinated with the totality of our sense-experiences” [Einstein]. But our sense-experiences are limited to the minute interval of human history. The theory is a hypothetical extrapolation far beyond our experience, which we can never verify.

On the inside too, in our own subjective experience, we are unable to trace back to their “ultimate cause” changes that take place within ourselves. Where does the fleeting thought come from, that evades us whenever we have found a pen to write it down? What causes the tricks our memory so often plays on us? Why are we not masters of our moods, our longings, our love and hate? Why was Einstein able to create his theory, whereas Lorentz was not? Where did Beethoven get the idea of including the *Ode an der Freude* in his ninth symphony? “My soul is a dark forest and my known self only a small clearing in the forest.”<sup>3</sup> What lies beyond our known experience within us we may call *subconscious*, but this name giving should not lead us to think of ourselves as closed systems. If it is erroneous to consider the universe, and ourselves within it, as closed systems, then the doctrine of scientific determinism does not apply.

*Laplace’s scientific determinism is akin to religious determinism. The “intelligence” that could “in principle” calculate the future of the universe is more like God than human (passing by the uncertainty principle and chaos theory unknown to Laplace).*

Laplace’s scientific determinism has been refuted by others. It has been pointed out that the computer needed to make his calculations would

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3. D.H. Lawrence, quoted from memory.

need to be more complex than the universe itself.<sup>4</sup> That it is impossible to know the initial state of all particles in the universe with sufficient precision (uncertainty principle). That a slight error in the initial data may add up to a huge difference in the future (chaos theory). This is all correct, but we do not need it.

One may already be familiar with another famous quip by Laplace. It is said that he had presented Emperor Napoleon with a copy of his work on the mechanics of the solar system, *Mécanique Céleste*. Napoleon then criticized him for a presumed omission: "You have written this huge book on the system of the world, without once mentioning the author of the universe". Laplace's answer was: "Sire, I had no need of that hypothesis" (E.T. Bell [1937], p. 181).

But did he not? In order to explain his doctrine, he had to "assume... an intelligence which could know all the forces by which nature is animated, and the states at an instant of all the objects that compose it; ...for [this intelligence], nothing could be uncertain; and the future, as the past, would be present to its eyes". Laplace's hypothetical "intelligence" has been called his "demon". But is this not how one thinks of all-knowing God, endowed with a super-human intelligence? His assumed "intelligence" is none other than the very God he said not to need as a hypothesis.

## Religious Determinism

Religious determinism may be summarized as follows. Being transcendent, God looks at the universe from the outside. Being all-knowing, "the future, as the past, is present to his eyes". He also knows the choices we will make and, as these are already known to him today, we cannot have a free will. It sounds like this makes sense, yet it does not.

When we reason about God, we do so necessarily in human language. This has been known since ancient times<sup>5</sup>, yet people seldom seem to accept the consequences. As Maimonides laboriously explains, all assertions about God in anthropomorphic or physical terms are similes and metaphors only, because we have no other way to talk about Him. It is either this or Wittgenstein's maxim: "Whereof one cannot speak, thereof one must be silent".

As humans, we tend to extrapolate from our limited human experience. We know of mighty kings, but all of them have weaknesses. God

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4. By Karl R. Popper (1982), p. 124, citing his friend F.A. von Hayek.

5. Moses Maimonides (1956), pp. 35 and 44: "The *Torah* speaks according to the language of man".

cannot have these weaknesses, therefore we call Him all-mighty. We have some knowledge, but there is more we do not know. God cannot have this defect, so we call him all-knowing. Thus we conceive God as a human being, but one having only good and perfect human qualities.

Yet we really have no idea what it means to be all-mighty or all-knowing. Reasoning about God as if he were human but perfect, we run into paradoxes like: "If God is all-mighty, can He create a rock which He cannot lift Himself?" The paradox says nothing about God, but everything about the limitations of human reason.<sup>6</sup>

We cannot even begin to imagine what it would mean to be "all-knowing", observing the universe from the outside; to us, this phrase is meaningless. Yet religious determinism would have us imagine just that. It asks us to imagine God as a super-human, who is not part of the universe, looking at it from the outside. This super-human then "sees" the universe as a closed system. His way of seeing it is but an extrapolation of our own human way to see parts of nature, *viz.* as closed systems. I have already said above that closed systems are human inventions. They are models which we impose upon parts of nature. There is no justification at all to assume that God "sees" the universe in this human way.

When imagining God as a super-human, religious determinism makes another erroneous assumption. It is that the whole is similar to a part, only bigger. It is the common assumption that valid conclusions may be drawn by extrapolating from our limited human experience to a different scale. Modern physics has proven this assumption wrong.

The oldest notions about atoms, the building blocks of matter, conceive of atoms as very small marbles, grains of sand, or even crystals. These are the things we know, and atoms were thought to be like them — only much, much smaller. We now know that atoms are *unlike* anything we know from daily life. Physicists still liken them either to particles or to waves, because these are the models they comprehend. But something that we need to imagine sometimes as particles and sometimes as waves, evidently is unlike either. Which is to say that the extrapolation from our daily experience to the scale of atoms has failed. Atoms are not like grains of sand, *only* smaller. Difference of scale does matter. Difference of scale may imply difference in quality.

The same may be said about extrapolating to a larger scale than our human scale. Newtonian mechanics summarizes human experience of the things around us: apples, cannon balls, wooden beams, whatever.

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6. Karl Popper has pointed out more logical difficulties in thinking about God as an omnipotent and omniscient super-human. If God knows the future, and therefore the future is fixed in advance, does God still have the power to change the future?

And, for a few centuries, it has been assumed that this summary could be applied also on the scale of planets, stars, and galaxies. Until the evidence forced physicists to drop this assumption and generalize Newtonian mechanics into the relativity theory. On the scale of the universe, our terrestrial ideas of space and time are not appropriate. Once again, the extrapolation from our daily experience has broken down. Interstellar space is not like our backroom, *only* bigger. Difference of scale implies difference in quality. Are we then justified in assuming that the universe as a whole may be imagined as we imagine the balls on a billiard table, *only* much bigger? This is not only unlikely, it is preposterous!

The doctrine of religious determinism relies on reasoning about the human experience as if we were God. Such reasoning is necessarily flawed. It assumes that, as humans, we can take the viewpoint of God, an assumption which I would call (in an extension of common usage) "deification". But God's ways being beyond our ken, the outcome of such a reasoning is bound to clash with our experience. The paradoxes we face are of our own making.

Rather than imagining to be God, I propose that we substitute for Him an experienced psychologist who knows me well. The psychologist may well predict what I will do next, tomorrow or in such and such a situation. This is not extraordinary, but does it mean that I myself do not choose to do what I do?

Karl Popper has dealt with the question (Karl R. Popper [1982], section 22). He asks whether a computing machine could calculate its own future state, with evident application to human beings. His answer is *no*, because, as the outcome of the calculation becomes part of the present, the present is changed and the calculated future state becomes invalid. Applying this answer to my psychologist friend, his prediction remains valid only if he does not tell it to me. As soon as he does, it becomes a part of my present. Then his prediction has become worthless, because with this new information I may (or may not) decide to do something else. The psychologist can only predict my behaviour successfully, if he treats me as a closed system.

So, if we insist on reasoning from God's assumed perspective, we run into another paradox: God is not at liberty to tell us what He knows, because then He would not be all-knowing any more.

## Free Will

What then *is* free will, is it a meaningful concept? Einstein, at least, did not think so:

“Honestly, I cannot understand what people mean when they talk about the freedom of the human will. I have a feeling, for instance, that I will do something or the other; but what relation this has with freedom I cannot understand at all. I feel that I will light my pipe and I do it; but how can I connect this up with the idea of freedom? What is behind the act of *willing* to light the pipe? Another act of willing? Schopenhauer once said: ‘Man can do what he wills, but he cannot will what he wills’” (Abraham Pais [1994], p. 132).

I would say that a concept, any concept, has meaning because it refers to some human experience. If we forget the reference to experience, we are just playing around with words. So to what experience does *free will* refer?

Talking about the physical sciences, Einstein said: “Concepts and propositions get ‘meaning’, *viz.* ‘content’, only through their connection with sense-experiences”. But our experience is not limited to sense-experiences, we have inner or subjective experiences, too. For instance, these are emotions of love or hatred, pain, consciousness. Science of human beings cannot ignore them, but should take them as not less real than sense-experiences.<sup>7</sup>

In my opinion, the concept of free will derives from the subjective experience that *we do not know what we will do until we have done it*. Einstein may reach out to fetch his pipe, but then a visitor may knock on the door and he goes to meet him first. Or a luminous idea on unified field theory strikes him just at that moment, he starts writing it down, and forgets about his pipe.

This inner, subjective experience of living in time, of not being able to predict our next step, is not an illusion, it is a basic fact of life. Just like the constancy of the speed of light, it should be considered as an experimental datum. The idea that only sense-experiences are real, and that inner experiences must somehow be reduced to them, is a prejudice — probably conceived because of the success of the physical sciences. This prejudice is impeding progress in human science.

Take another example of inner experience — pain. Medical science cannot but admit its reality, as Patrick Wall admits: “Pain exists. My pain, as it grows, is an imperative, an obsession, a compulsion, a dominating, engulfing reality. Your pain is a different matter. I observe you and listen to you. I sympathize with you by guessed analogy. If your state is beyond my ken, a woman in childbirth, a man passing a kidney stone, I am in a

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7. “Belief in other people’s sensations and emotional states is the starting-point of civilized living. It seems absurd to doubt it. If it is this that behaviourism denies, behaviourism as a theory of psychology is an ass” (Richard L. Gregory [1977], p. 274).

particular difficulty. Even if I have experienced your particular situation, if I see you hit your thumb with a hammer, I not only remember my own pain, but I recall my behaviour and now I am in the dangerous situation of assessing the appropriateness of your behaviour. Doctors and patients become extremely angry with each other when there occurs a mismatch between disease and the amount of pain which the doctor expects, especially if the patient has the impertinence to fail to respond to accepted therapy. At this point, the doctor begins to question if the pain is real or in the mind. What is this curious question asked by the observer, but never by the person in pain?" (Patrick D. Wall [1977], p. 362)

Patrick Wall describes eloquently in what respect inner experiences are different from sense-experiences: they cannot be shared with others or pointed out to others. Any person only knows his or her own pain, his or her own feelings, his or her own free will. But is that a reason to consider them as not being real? We are part of the universe, albeit a small part. If our reality consists of what we experience of the universe, then it also consists of what we experience of that part of the universe that we are ourselves.

The discussion about free will becomes muddled because people tend to regard it as an objective entity, something that can be pointed out to others.<sup>8</sup> Or, if we cannot point it out, if there is no "scientific, objective proof" of free will, then it cannot be real. I consider this to be reification, which is unsound reasoning. Reification is generally defined as "regarding something abstract as a material thing" or "supposing that whatever can be named or conceived abstractly must actually exist". I propose that "applying a concept derived from inner experience as if it were co-ordinated with sense-experiences" is also a kind of reification. Many riddles and paradoxes result from this erroneous way of thinking.<sup>9</sup>

Of course, science may investigate the objective counterpart of inner experiences, like the nerve impulses accompanying pain. But these cannot be substituted for the experience itself, nor are they necessary to "prove" its reality. I consider the two views — the subjective and the objective — as complementary, like in physics the particle and the wave description of matter. They seem incompatible, but they are only so when applied incorrectly. Both are viable descriptions when applied to the phenomena they are meant to describe.

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8. "Some maintain that free will is an evolved, emergent property of the brain that appeared between man and the higher apes..." (Roger W. Sperry [1977], p. 432).

9. For instance, the discussion about consciousness. "Does consciousness causally affect the brain? Is it enough of a *thing* (or force, or whatever) to be a causal agent? If not, what *use* is consciousness?" (Richard R. Gregory [1977], p. 276).

So it is with my experience of freely choosing what I will do, and the psychologist's prediction of what I will do. They are complementary views, belonging to different perspectives. There is no logical reason, indeed no reason at all save habit, to consider the view of the psychologist more true than the view of the subject. Both views are true. They are conflicting only when we try to apply them from the wrong perspective.

## Conclusion

Reasoning about our experience makes us human. We create models ("concepts and conceptual systems"), attempting to obtain the most nearly possible certain and complete co-ordination with the totality of experiences. This is so for our experience of the world outside us, but also for those experiences which we can only find inside ourselves.

We do not know the real world out there, nor our real self inside. We build our models on a limited experience of both. Instead of debating the models, it may be more fruitful for the science and religion dialogue to compare our experience.

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## Sur les traces de Patanjali

Une relecture féminine des « yoga sutra » 1 et 2,  
connus comme les *Patanjali yoga darshana*

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Traditionnellement, les textes philosophiques anciens rédigés en sanskrit, souvent considérés comme des textes sacrés, ont été traduits par des hommes. Cela est historiquement compréhensible et se doit au fait que la connaissance du *raja yoga*, ou yoga royal, était surtout un savoir transmis et développé par les brahmanes, les sacerdotes qui constituaient la caste la plus élevée de la société hindoue. Toutefois, le yoga est antérieur à cette ancienne société hindoue patriarcale. Les premières traces archéologiques des positions de yoga remontent à 5000 ans avant J.C. et auraient été pratiquées par le peuple dravide, d'origine indo-pakistanaise, une société matriarcale à la source du concept de tantra ou tantra yoga, originaire du terme sanskrit *tantr*, qui veut dire « méthode ». Cette société aurait été durement combattue et, finalement, détruite par la société hindoue traditionnelle. Bien entendu, il est difficile de vérifier tout cela autrement que par des fouilles, des reconstitutions historiques et des suppositions. Toutefois, il est intéressant de constater que, si l'on remonte aux origines du yoga, l'on se retrouve face à une guerre entre une société matriarcale et une société patriarcale et face à la cuisante défaite des femmes. Nous savons qu'en Orient, historiquement, la condition féminine est particulièrement douloureuse et difficile. Cela ne veut pas dire qu'en Occident la situation soit aisée, ni meilleure, mais la femme occidentale est parvenue à obtenir, au moins sur le papier, une égalité à l'homme de condition humaine, en dignité et en droit. Toutefois, c'est vrai qu'en Occident les femmes ne disent toujours pas la messe et elles sont rarement admises au cercle étroit de la philosophie. Le fait est que cette guerre qui se perpétue entre hommes et femmes épuise et fragilise l'humanité. L'étude attentive

du yoga m'a démontré qu'il constitue une voie orientale de conciliation, peut-être même actuellement de réconciliation du féminin et du masculin en nous. Mots clés: philosophie – santé mentale – santé physique – yoga – transdisciplinarité.

### Le refus du pire

Le yoga représente donc une occasion de méditer, de respirer, de prier, de danser, de se détendre seul ou en compagnie. Or, actuellement, la tendance n'est pas au désarmement et à la rencontre entre hommes et femmes qui constituent de « l'esprit de la terre ». L'on voit apparaître des femmes-soldats, des femmes policières, des femmes qui s'inscrivent à des cours d'arts martiaux pour apprendre à se battre et à se défendre. La confiance entre les uns et les autres se détériore, de nombreux hommes ne se sentent plus tenus de protéger les femmes et les femmes ont décidé d'apprendre à se débrouiller et à se défendre seules. Allons-nous vraiment nous résigner à enseigner à nos filles et à nos petites-filles la boxe, le tir et le karaté ? La délicatesse, la grâce, la douceur, l'élégance vont-ils devenir des défauts, des faiblesses ? Si nous voulons véritablement vivre en paix, à mon humble avis peut-être devons-nous commencer cette paix à la maison et le yoga peut y contribuer. Ma relecture « féminine » des yogas sutra de Patanjali n'est pas une tentative de me situer en compétition avec les excellentes versions masculines dont je m'inspire et où je puise des forces, par ailleurs, et il est hors de question de rédiger la revanche d'une dravide ressurgie du fond des âges. Je souhaiterais simplement fournir une lecture aimante, complémentaire, supplémentaire des sutras 1 et 2, dans le souci de contribuer à l'apaisement de l'esprit de la terre. L'« esprit de la terre » est une expression de Pierre Teilhard de Chardin, dans son bel ouvrage *L'Énergie humaine*, écrit et paru aux Éditions du Seuil, en 1962. Selon lui, nous sommes arrivés à un seuil, à une « surface critique de transformation », et il va nous falloir, si nous voulons nous survivre, survivre à nos guerres, à nos injustices, à nos rancunes et à nos désamours, éveiller les forces dormantes, hésitantes de cet esprit collectif qui se fonde sur notre incroyable puissance d'aimer et découvrir ensemble « le sens de la terre ». J'écris ces quelques lignes, car je me refuse au pire, je suis une femme qui aimerais tellement ne pas avoir à apprendre à combattre ou à se défendre, à me méfier de mon mari ou de mes maîtres, à faire des procès d'intention à ma famille, à entrer en compétition avec mes voisins ou mes collègues de travail. Une femme qui ne se résigne pas à frapper ou à être frappée, à gagner ou à perdre. Une femme qui fait du yoga. Sa position dans le texte : celle d'une sirène, une forme humaine en tenue de plongée.

SAMÂDHI — *Samâdhi pada*

**Sutra 1** — *Atha Yogânusadam*

Ici commence la voie du yoga

*Atha* : maintenant, ici, désormais, aujourd'hui.

*Yoga* : union, intégration, danse.

*Anusaman* : discipline, enseignement, chemin, voie.

*Sûtra* : fil ; cordon, règles ou ensemble de règles.

*Samâdhi* : illumination, contemplation, grâce, sérénité.

*Pada* : chapitre

*Darshana* : vision, conceptualisation.

Ce premier sùtra, ce premier fil de la tapisserie de Patanjali, tissé en 200 av. J.C. en Inde, constitue un premier contact avec ce mystérieux personnage, considéré par les Hindous comme un grand sage, un excellent danseur, peut-être l'incarnation de Shiva lui-même, le dieu de la danse, ou, plus prosaïquement, un médecin pratiquant de l'Âyurveda, une des toutes premières systématisations connues de la médecine humaine, encore pratiquée en Inde aujourd'hui et divulguée en Occident essentiellement par Deepach Chopra, mais comportant également de nombreux adeptes moins célèbres en Orient et en Occident. Avec simplicité et sans détours, Patanjali décrit l'entrée dans le yoga comme un acte immédiat : ici, maintenant. Il n'y a pas de pré-requis pour pratiquer le yoga, de même qu'il n'y a pas de pré-requis pour danser, ou pour être conscient, ou pour faire l'amour à un homme.

Après de nombreux combats institutionnels et un PhD. en Philosophie de l'éducation, j'ai obtenu l'autorisation du recteur d'enseigner le yoga à l'université au Brésil, à l'UNIFIEO, comme une modalité pratique de la philosophie orientale. Le cours a été offert par le Département de Physiothérapie, mais il a été ouvert à tous les étudiants de l'université, aux membres de leurs familles et aux fonctionnaires de l'université. Située dans une banlieue très pauvre de Sao Paulo, aux portes d'une grande zone de *favelas*, mes élèves ne possédaient aucune expérience de la pratique du yoga et une conscience corporelle assez restreinte. (En général, à Sao Paulo, le yoga est une activité très « New Age », assez coûteuse, réservée aux plus nantis, en général des femmes entre 40 et 50 ans.) Mes cours ont été fréquentés par les étudiants de disciplines très variées, comme la physiothérapie, l'éducation physique, l'histoire, le journalisme, la biologie, etc.... Sans omettre les mères de famille d'étudiants, les conjoints, les surveillants ou les secrétaires. J'ai enseigné des exercices respiratoires

à des personnes vivant l'épreuve de la douleur provoquée par la radiothérapie, fait de la relaxation avec des obèses morbides, des étirements suaves avec des athlètes malmenés et pour qui il était urgent de découvrir un rythme plus stable, plus confortable et mieux adapté à leur nature.

En sachant que j'étais professeur de yoga, mes étudiants de première année de philologie me demandaient de faire un peu d'étirement sur leurs chaises et j'ai même conduit des brèves séances de relaxation et de méditation après la classe dans des amphithéâtres bondés, devenus, comme par enchantement, sereins et silencieux. Que l'on soit assis, debout, en marche, étendu sur l'herbe d'un parc, sur le sable fin d'une plage déserte ou sur un lit d'hôpital, le yogi commence par respirer profondément, pleinement. Il inspire à pleins poumons, en gonflant le ventre... Puis il retient un peu l'air et ensuite il souffle longuement, il expire par le nez, par la bouche, comme cela lui semble le plus naturel, le plus confortable. Il creuse un peu son ventre, demeure quelques secondes sans air, en apnée, comme un plongeur. Et il recommence... Cette respiration calme, posée, consciente lui permet d'être là. Le terme sanskrit *Samâdhi* a été traduit en anglais par *Beingness*. Être là pour soi, pour les autres, pour le monde. Habiter sa place naturellement, sans effort, paisiblement. Le *Samâdhi* est une veillée. En respirant consciemment, pleinement, le yogi veille sur la vie.

Sans vouloir aucunement se substituer aux médecins, aux pharmaciens et aux professionnels et chercheurs de la santé physique et mentale, le yoga nous indique cependant, que le corps et la conscience corporelle ne sont pas deux choses distinctes, que l'on ne devrait pas séparer celui qui pense de celui qui voit, qui imagine, de celui qui ressent et que cette division arbitraire, cartésienne, peut même avoir un aspect pathologique lorsque la science réduit l'humain à une mécanique complexe, ou bien ses parties à des instruments dissociés, dont elle tente de nier l'opacité et l'inachèvement.

Le yogi qui médite en silence est mystérieusement un tout supérieur à la somme des parties. Parce que nous ne parvenons pas encore à expliquer scientifiquement avec précision cette interaction sujet/objet en nous, que nous expérimentons pourtant chaque jour, devons-nous nous réduire à des objets ? Force est de constater que le yoga constitue une de nos premières pratiques transdisciplinaires et qu'il s'étudie depuis plus de 5000 ans.

"Yoga is both the means and the end."

"Le yoga est simultanément le chemin et le passage qui conduit au sens du chemin."

B.K.S. Iyengar

**Sutra 2** — *Yogah Cittavrtti Nirodhah*

La condition de recueillement requise par le yoga modifié  
L'activité mentale offre au pratiquant la possibilité de trouver la paix.

*Yoga* : union, intégration, danse.

*Citta* : La conscience qui se compose de trois dimensions : observatrice (*mind* — *manas* en sanskrit), égotique (*ego* — *ahamkara* en sanskrit), conceptuelle (*intellect* — *buddhi* en sanskrit). Selon B.K.S. Iyengar, *Citta* a trois capacités : la pensée, la volonté ou l'intention et l'action.

*Vrtti* : processus, vague, fait de rouler, conduite, transformation, fluctuation, ondulation, opération, fonction.

*Nirodhah* : cessation, apaisement, recueillement, repos, décantation.

Traditionnellement et au pied de la lettre, ce deuxième sutra de Patanjali et sans doute aussi le plus célèbre, à tel point que l'on exige du yogi qu'il le récite par cœur, est traduit par « le yoga est la cessation de l'activité mentale », selon B.K.S Iyengar : “yoga is the cessation of movements in the conciousness”. Le concept de *Nirodhah*, très fréquemment employé par les studieux du sanskrit, est d'un commun accord toujours traduit par « cessation », que les textes soient bouddhistes ou hindouistes. Le moine Tenzin Gyatso, l'actuel Dalai-lama, leader spirituel du Tibet, ressasse le terme dans ses nombreuses conférences, pour ainsi dire. Toutefois, exprimé de la sorte — « le yoga est la cessation de l'activité mentale » —, l'occidental qui débute sa pratique va soit se trouver devant une impossibilité, voire face à sa mort clinique et il risque de prendre peur. Voilà un des inconvénients des traductions d'école, retransmises depuis des années, mais inadaptées à l'époque et au contexte. Si l'on souhait être rigoureux, il serait souhaitable d'ajouter à cette définition quelques paliers ou nuances intermédiaires. Pour pratiquer le yoga, il est bon de se recueillir dans un lieu calme, confortable, où l'on se sent à l'aise et en sécurité, avec un peu de temps libre devant soi, un temps qui *a priori* ne sera pas interrompu par une autre activité. Ce temps et ce lieu préservés permettent un retour à soi ou en soi. Ce recueillement doublé d'une respiration calme, profonde, d'étirements suaves, un peu à la manière de l'anti-gymnastique et qui peut aussi être une promenade solitaire, silencieuse dans un beau parc, au bord d'une plage déserte, dans une forêt, un jardin, au bord d'un lac de montagne, effectuée à un rythme naturel, peut, si on se le permet, produire un relâchement des tensions du corps et un apaisement de l'esprit. Toutefois, bien souvent cet apaisement est progressif, à mesure que l'on prend l'habitude de se recueillir régulièrement, de se concéder un temps et un espace pour cette rencontre entre un corps et la

conscience qui l'habite, de revenir vers soi avec ou sans l'aide d'un instructeur ou d'un DVD pour débutants, le calme peut éventuellement s'installer. Il s'agit bien d'une discipline, d'un « exercice spirituel », mais, débarrassé de son côté astreignant, pour beaucoup le yoga constitue une seconde nature, une méditation ininterrompue. Le corps devient un *dojo*, le sol sur lequel s'appuie et se construit la méditation qui permettra grâce à une conscience orientée ou intercedée par des valeurs humaines qui s'appuient sur la non violence : *ahimsa* en sanskrit, ou un profond respect de la vie, de trouver ou retrouver une certaine harmonie. Il s'agit d'une double rencontre avec une culture qui aspire à la paix, un héritage millénaire et avec soi-même. Toutefois, l'activité mentale ne cesse qu'à la mort : cette cessation est connue par le yogi comme le *Maha Samâdhi*, la grande contemplation, et, en ce sens, le yoga n'est pas simplement une façon de vivre, il est aussi une façon de se préparer à sa propre mort. Une statue en fer forgé du parc Stanley, à Vancouver, une femme en costume de plongée figée sur une roche, tribut de la ville à la mer ou vestige d'Atlantide dans mon imaginaire secret, est seule à faire du yoga pour l'éternité.

## Références

1. Pierre Teilhard de Chardin, dans *L'Énergie humaine*, Le Seuil, Paris, 1962.
2. B.K.S. Iyengar, *Light on the Yoga Sutra of Patanjali*, Thorsons, Great Britain, 1993, p. 52.

## Water and Word — A Study of Memory —

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Considering the fact that we are facing the driest and warmest year throughout history, resulting from the global warming phenomenon (caused by the excessive pollution and disastrous treatment by the human race of the Earth they have been created of, in resemblance of the Lord), we can conclude that the materialistic-dialectic system has won at a global scale. The modern age has separated the humankind from the surrounding environment (and the post-modern age has enhanced this separation) and made man the absolute master of nature. This separation enabled man with the power of determining nature to accept his own laws, which are different from God's, aiming at modelling and exploiting the environment according to his aspiration towards profit and earthly supremacy. The consequences are revealed by the current planet-scale ecologic crisis, which influences the natural order of the seasons, the life of the present-day generations and, above all, the life of the future ones. Taking the Lord out of our daily life, we have sent Him to the transcendent heavens and "abandoned" Him out there. Thus, we have abandoned as well the idea that man is fully dependent on nature, not only nature depends of the humankind; the transcendence of the Lord does not mean His absence from the Creation.

This is why it appeared to me that now is the best moment to talk above the power of the Word and of Water — the virtues, characteristics, and memory of water; such a discussion could be a sort of request for repentance and a necessary reflection not only on the primordial waters that mirrored the Spirit of the Lord, but also the water of the river Jordan, with which John baptized the crowds and asked the people to turn away from sin and repent. In fact, what does repentance mean? The Greek term

is *metanoia*, which contains the words *meta-* and *nous*, *i.e.* changing one person's mind about what his or her life is. What else could we talk about today, if not about changing our lives, mainly because the very presence of this gift, life, is being put in jeopardy? In its turn, repentance is associated with water (not always, indeed) — that is, the water of the tears in our eyes. Therefore, when we discuss the global-scale draught, we should put the same emphasis on the draught in our souls.

Nowadays, water has turned into a global issue that concerns all nations, regardless of their geographic position or level of development. The distribution and utilisation of water resources have an impact on the contradictions and limits of development, the behaviour and patterns of economic growth, and the choices opened (or closed!) before the future of the humankind. It is almost needless to mention the importance of water for life, as long as water is found in everything, everywhere. No vegetal or animal tissue can exist without water. The amniotic liquid represents the aquatic environment in which the embryo is formed and the foetus grows, ending in birth. Man is the most complex living structure and cannot survive without water more than thirty days. Three quarters of the human body is water. One person weighing 70 kilos (about 140 lbs.) would only weigh 17 kilos (about 34 lbs.) without water. The human brain is 85 percent water. At Earth's scale, we find a similar ratio, since water covers about 71 percent of our planet's surface; the overall volume of water is 1,4 billion cubic kilometres, most of it in the polar ice caps, glaciers, and groundwater layers. Out of this huge amount, 98 percent has a very large concentration of salts. Therefore, such resources cannot be used as drinking water, or in the irrigation systems, or for certain industrial activities. The surface water bodies (rivers and lakes) contain only 0.014 percent of the overall global water resources.

Experts have concluded that the initial percentage of water in our body weight (80 percent) gradually decreases during our lifespan; when we are about 65 years of age, the percentage is about 50 percent. Thus, the greater the quantity of water we uselessly lose, the faster our ageing rate is. For the same reason, as long as we continuously diminish and change the features of the water at global scale, we quicken our planet Earth's "ageing".

Perhaps the easiest way to answer the question "What is water?" is to mention that water is the energy of life. If one loses 50 percent of the water volume, he or she simply cannot stay alive. Water is circulated by the blood and other fluids and is the means that brings nourishment to the various organs of our body. This water circulation allows living active lives. Water is useful to transporting the energy through our body to the limbs. As we know, movement, changing and circulation are the principles of life.

Water was present on Earth prior to the occurrence of life; it was the environment and the prerequisite of life. Water also takes part, as if it were a construction material, in the living structures. It generates the structural energetic processes and governs such processes through its special features. Water represents a genuine environment. The cells of the living organisms contain water; the interstitial fluids also contain water; thus, the organisms contain water as well. The aquatic organisms live in water, and the atmosphere that includes water vapours surrounds the terrestrial ones. Thus, the environmental circuit of water ensures, as a matter of fact, the aquatic environment for all living organisms.

The topic of water memory is both actual and subject to controversial debates by many scholars. We only mention a small number of such persons: Jacques Collin (*L'eau, le miracle oublié* and *L'Insoutenable Vérité de l'Eau* — 1993), Roger Durand (*L'eau et la vie*), Michel Schiff (*Un cas de censure dans la science — l'affaire de la mémoire de l'eau*), and, last but not least, the Japanese scholar Masaru Emoto, with his *Message de l'eau*<sup>1</sup>, a work that we are going to discuss below.

Jacques Collin asserted that water adapts its physical, chemical, and cosmic characteristics to the surrounding nature, to each level of development of the living or lifeless matter. Within this context, water is not only the vector that produces the physical-chemical changes at cellular level of the living matter, including the human body, but also the mediator of the vibratory energies that we receive from the environment. Further more, the fact that water is a good solvent is well-known, as is the capacity of hydrogen bonding, which influences the dynamics between the electron and the proton needed in the physical-chemical processes that occur in the metabolism of the living matter.

Another important reference for the topic of *Water Memory* is Jacques Benveniste, a Research Director with the French National Institute for Health and Medical Researches. In 1988, he conducted an experiment for testing the basic principles of homeopathy. He diluted one drug down to a dilution level that did no longer allow the medical means of detection to put in evidence the presence of that specific drug and found out that the presence of the diluted substance had the same influence onto the patient as the undiluted drug had. Water had preserved the “memory of the alien molecule” though the molecule was no longer physically present. The problem raised was how to prove that it is admissible to consider that a molecule can put its impression like a memory onto the water after the molecule itself is not present any more.

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1. Masaru Emoto, *Mesajele ascunse din apă (The Water-Hidden Messages)*, „Adevăr divin“ Publishing House, Braşov, 2006.

According to scientists, we are faced with a mysterious fundament of this phenomenon. On the other hand, such a phenomenon suggests that the scholars should discuss this unknown organisation of matter. At the current level of knowledge, the mechanism of this "memory" cannot be scientifically proved. The high dilution experiments are just one aspect of water memory. Water has many valences that open a large horizon of applications in biology. Other scholars have proven that water acts as a resonator. It can resonate along with many frequencies, which allows catching all kind of vibrations. In other words, the living environments, *i.e.* the organisms, are subjected to environmental variations of a cosmic origin: solar and lunar cycles, seasons etc. Within this vibratory universe, water plays the role of an energy conveyor between the environment and the living organisms; it is able to catch, transmit, and finally transform the electromagnetic cosmic energy into an ionic one, meaning that it makes all atoms and cells of the human body work chemically, metabolically, and dynamically (Giorgio Piccardi, 1951 and Ștefan Milcu).

It is well-known that the cosmic rays come from the sidereal spaces, although their origin has not yet been scientifically explained. Still, their penetration power is huge. The researches carried out during the latter half of the past century proved the impact of such rays onto the living matter. Certain scholars consider these radiations as sources of maintaining the vibratory energy of the living cells. Well, the organic water is able to catch and amplify such electromagnetic radiations.

Since water is present throughout the Universe, the living matter (including the human organism) is extremely sensitive to terrestrial, solar, and cosmic events, in general, and to magnetic fields, in particular. Therefore, the living matter cannot be isolated from the rest of the Universe. Between the Universe and us there is a communication, a "dialogue", and a permanent connection resulting in inter-actions of the systems. Especially the human body is very sensitive to such vibrations that our five senses cannot detect, exceeding our understanding horizon to a certain extent.

Nowadays, the scientific experiments attempt to demonstrate the mechanism of "water memory", creating physical and chemical models, as well as high dilution vibratory models viewing the informational content of water and studying the structure of water crystals. Nevertheless, *the vibratory physical model of water in highly diluted solutions is so far not explainable.*

Another research direction: the possibility to view the "photography" of the informational content of water through the study of its crystals. The crystalline images and traces of water have the outstanding capacity of restoring the biophysical fields. At present, there is no way of defining the nature of such "fields", nor to quantify them.

Whether water is able to *copy* and *memorize* information, we could also assert that the ocean water has the memory of the creatures living in such an environment. On this basis, it is quite possible that the glaciers all over the Earth keep frozen millions of years of our planet's history. Water is in circulation around the Earth, passing through our bodies and spreading throughout the world. If we were able to decipher the information included in the memory of water, we could read an epical-scale story.

The Japanese professor Masaru Emoto (mentioned above for his contribution) started his investigation of the messages hidden by water from the information that we obtained not long ago, namely that "there are no two absolutely identical snow crystals". Therefore, the aspect of all the snowflakes that have fallen upon the face of the Earth for eons was always different. Consequently, the Tokyo professor decided to freeze some water and make photos of the crystals. The images were extremely eloquent for the description of the world. In a matter of 20 to 30 seconds before thawing, the ice crystals revealed the sensibility of God's Creation. His Truths take shape and become visible, even for a few seconds.

The study of crystal formation allowed Masaru Emoto to understand that various types of water give birth to various types of crystals. The water in Tokyo (generally in crowded urban environments) is disastrous. No whole crystal has been obtained. This is so because the chlorine concentration for the treatment of water completely destroys the structure of the natural water. On the contrary, the natural water (no matter where it originates, *i.e.*, natural springs, groundwater streams, glaciers, or upper courses of rivers) generated whole crystals.

After a while, the scholar wondered what could happen if the water were exposed to music. The result was amazing. Beethoven's *Pastoral Symphony*, with its clear harmony, resulted in fine and well-structured crystals. Mozart's *40<sup>th</sup> Symphony*, which is a gracious ode dedicated to beauty, produced delicate and fine-shaped crystals. As for the crystals obtained from water exposed to Chopin's E Major Study Opus 10 no. 3, the delicacy of the structures was outstanding. On the other hand, the water exposed to violent heavy-metal music produced dark, fragmented and deformed crystals.

The experiments did not stop at this stage. Certain words or phrases, such as "Thank you" or "You, stupid!" were written on sheets of paper wrapped around water recipients, with the written words towards the inside. Was it conceivable that the water could actually "read"? Well, yes. The water wrapped in the "Thank you" note produced beautiful hexagonal crystals, whereas the one wrapped in "You, stupid!" resulted in crystals that were quite similar to those obtained in a heavy-metal environment, that is, deformed and fragmented.

The scholar used this opportunity to study the power of the word. The vibrations of blessing words have a positive impact onto our world, while the vibrations of negative words can destroy it.

“Starting to learn about water is as you would discover the way the Universe works; the crystals produced by water are like gates to another dimension, to understanding the profound realities of the Universe”, states Masaru Emoto. “I remember one specific photo. It was the image of the most beautiful and delicate crystal I had ever seen; it had been formed with the words “Love” and “Gratefulness”.

Thus, we can reduce the outstanding researches carried out by Masaru Emoto to considering that the memory of water includes two characteristic aspects of life: *the Word* and *the Vibration*. We should keep them in mind. Later on, we shall see how these words can be found in the Christian Orthodox Theology.

During his controversial debates with Varlaam the Calabrian (latter half of the 14<sup>th</sup> century), Saint Gregory Palama stated that the people’s findings, though they are true, do not bring any contribution to Salvation. Nothing of what is needed and useful for Salvation is missing from the teaching of the Holy Spirit.<sup>2</sup> This straight statement of the former Archbishop of Thessaloniki could make some superficially thinking or ignorant persons question the fact that the Orthodoxy is opened to the scholars’ huge range of preoccupations related to the knowledge of the world’s hidden secrets. This is true, but Saint Gregory Palama’s statement regards the permanent reference to the Holy Book. It is not the sciences that produce the Purification of Ignorance, but the Holy Scriptures and the Christian Truth<sup>3</sup>, so the Saint used to say, whom we celebrate on the second Sunday of Lent. Indeed, The Holy Book brings our attention to the primordial waters and their continuous relationships with the Holy Spirit.

In the beginning, God created the Universe and the Earth. And the Earth was formless and desolate (*Genesis*, 1, 1-2). The Greek word *abyssos* (“bottomless”) translates the Hebrew term *tehom* (the primordial waters, of which water springs and rainfalls would occur). The Holy Spirit seems to be warming and bringing to life the silent mirror of the water, producing wave after wave and “acting in a perpetual manner” (in Greek, the verb *epephéreto* means “to behave as if bringing to light the continuous aspect of the action”), “warming the waters and bringing them to life”, according to Saint Basil the Great. “Acting” means “moving” or “drifting” above the waters, as in *Genesis*, 7, 18, where Noah’s ark drifted on the surface during

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2. Dumitru Stăniloae, *Viața și învățătura Sfântului Grigorie Palama* (Life and Teaching of Saint Gregory Palama), Scripta Publishing House, Bucharest, 1993, p. 27.

3. *Ibidem*, p. 32.

the Flood. Saint Basil the Great discusses the verb of the Syrian language meaning that the Holy Spirit “warms” the water, preparing the birth of the living creatures (like clucking a hen in the nest).

For the Christian clergy, theologians, and believers, the religious service of water blessing is very important among the services established by the Church. It is not the proper framework here to take this issue into discussion. We shall only analyse certain details, for example the fact that the *small Holy Water*, also known as *consecration*, which is a word of Slavic origin, translated as *illumination* or *illumination ceremony*. At the dawn of Christianity, this meaning was related to the *great Holy Water*, celebrated at the Epiphany; the ancient meaning was also related to the Baptism, also known as illumination (*photonós*), because it was about the passage from the dark realm to the world of light, where Jesus Christ rules, He who is “the light of the world” (*John*, 8, 12) and “shines on everyone” (*John*, 1, 9). Those who are baptized “are all people who belong to the light, who belong to the day, not to the night nor the darkness” (*I Tes.*, 5, 5). The Baptism candidates were called *those who go to illumination* (*photizomenóí*), as they are called in the special *ektenis* performed for them during Lent, still in use in the *Liturgy of the Hallowed Gifts*, where it is pronounced “Pray for the illumination of God...”

“As the painters who draw at first the person’s face in one colour, afterwards adding details that bring to light the living face of the man, even the hairs, the Holy Ghost of the Lord brings back through Baptism the “face” of man according to the shape he has been created in; and when he looks at us in the splendour of his resemblance with the Creator, standing naked and fearless in His “workshop”, one virtue blossoms through another and makes the face of the soul go higher and higher, from one shining sphere into another, with the seal (*charaktêr*) of the resemblance”.<sup>4</sup>

We should also mention that the *small Holy Water* ceremony has the format of an independent religious service, with blessing formulas in the beginning and *otrust* in the end. On the contrary, the *great Holy Water* ceremony is placed within the Liturgy, between the Pulpit Prayer and the *otrust* (according to an explanation of the Metropolitan Bishop Paisie Ligarides of Gaza reproduced by Nicodim the Agorite). In other words, the power of the vibrations produced by the words pronounced is much stronger. And if the water subjected to Masaru Emoto’s experiments had the above-mentioned reactions to the harmony of the music composed by Beethoven, Mozart, or Chopin, as well as to disparate words and phrases

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4. Diadoh al Foticeii, *Cuvânt ascetic în o sută de capete* (Diadochus of Photicea, *Ascetic Word in One Hundred Heads*), 89, in *Filocalia (Philokalia)*, vol. I, translation, introduction and notes by Dumitru Stăniloae, 2nd ed., Harisma, Bucharest, 1992, p. 438.

such as *Thank you, love, and gratefulness*, we find it as quite normal to ask ourselves how should the water react to words like these: "You, Emperor and human lover, come now through the Descent of Your Holy Ghost That hallows everything and hallow this water. And give it the gift of Salvation and the blessing of the river Jordan. And make this water a spring of purity, a holy gift, a release from sins, a cure for disease, a perdition for the devils, an escape from the enemy powers, and an angelical power. All those who will taste this water must have it for the purification of their souls and bodies, for curing their sickness, for hallowing their houses and for all kind of useful things."<sup>5</sup>

Once again, I wish to remark that the rhetoric of our question simply regards the pronunciation of these words, according to the recently experienced models of Masaru Emoto. We do not yet put into discussion the divine gift of the priest who pronounces these words, and the fact that such words are not simply suspended in the air, but are entwined in what we call a *prayer*.

The fact that the Word became Flesh is the foundation on which the mysticism of many luminous persons of the Christian monasticism has been built. I shall only mention here one person that lived in the Scythian desert, Macarios the Egyptian, Evagrius' master and teacher; for him, the monk's continuous prayer did not aim at releasing the spirit from the prison of the body, but at the possibility of accessing the eschatological reality from the very place where we live. The eschatological reality consists in the Kingdom of God, which includes His Spirit and Body in Godly communion. The entire man, body and soul, was created resembling the Lord, and was entirely called to the divine glory. While the platonic intellectualism of his disciple Evagrius took man out of the known history, to make him spatially pass beyond, disregarding his matter, Macarios' mysticism, on the contrary, makes the Kingdom of God enter the world around us, in order to release it from the temptations of Satan and to make it shine right here, anticipating the light of the time to come: the real Christ Who has come, will come, and is present here to bless the Church; He is the sole centre of the spiritual life.

Now, let us see why the Orthodox Christianity includes the interdependence relationship between man and nature, a relationship reflected by the diversity of religious services. Unfortunately, such a relationship is not found in our behaviour towards the surrounding environment. The Orthodox-Christian belief regards nature as part of the human person

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5. Excerpt from "The Service of the Great Holy Water performed for the Baptism of our Saviour Jesus Christ" (see *Molitfelnic*, The Biblical and Missionary Institute of the Romanian Orthodox Church Publishing House, Bucharest, 1992, p. 632).

and a source of the human nature, which is a prerequisite of the whole existence and evolution of the humankind on Earth. Man cannot be considered as not belonging to the cosmic nature, and nature cannot fulfill its sense without man or through the man who acts against nature. Through the corruption, sterilisation, and poisoning of nature man makes his own existence impossible. Thus, nature is not only a condition of the singular man's existence, but also a condition of the solidarity of all humankind. Beyond any doubt, nature is the environment where man can make good or bad things to his neighbours, developing or ruining himself ethically and spiritually. Obviously, nature does not leave aside the blessing or destroying human dialogue; without this dialogue, neither the singular human person, nor the human community can exist. Each man is the reflection of the whole cosmic nature, only when put in the context of the human community. The cosmic nature is common to all human reflections, although we are faced with individual and personal reflections, which are complementary to each other. Hence, we are faced with man's responsibility with nature and his neighbours; its origin is in the responsibility we have for the Trinitarian God, the Creator of both nature and man.

Christ's Glory on the Mount of Tabor covered nature as well. We are talking about the *Transfiguration, the metamorphosis beyond shapes*. This Glory can be disgraced and affected by the evil attitude of certain persons. In its turn, nature can be the environment through which the faithful can be blessed with the Godly Grace or the blessing uncreated energies. Nature is the Godly sacrament and must be preserved not only as its disparate elements, but also as a natural synthesis, which is not static and sterile, but fertile and continuously changing, aiming at producing means of existence for the humankind. Therefore, nature appears to be a way used by man to develop spiritually and materialize his good intentions to him and his neighbours, as long as nature is preserved and considered according to its laws. On the other hand, when man makes nature sterile, poisons it, and makes enormous abuses, his physical and spiritual development is jeopardized. Nature must be considered a gift created and offered to us by a superior being; the same being has also created the humankind in solidarity. It was not the humans who produced such solidarity, but they can either weaken, or strengthen it, which can result in bad or good changes for them, respectively. Understanding nature as God's gift should not be thought to mean abandoning and leaving nature as it is, but as an invitation to work on it with all our creative imagination, in a similar manner to God's invitation to Adam, when He asked the first man to give names to the animals. Man always finds new alternatives to do certain things, not only through rational tools, but also through senses and new relationships intermediated between man and his neighbours.

Such alternatives should be expressed and communicated through a permanently enriched language.

This is an understanding of the words written: "And the Lord God who took some soil from the ground and formed all the animals and all the birds brought them to Adam to see what he would name them. And so Adam named all animals and birds and wild beasts" (*Genesis, 2, 19-20*).

Thus, God Himself asked man to speak, because He urged him or put in his nature the necessity of finding words for the things surrounding him, according to the nature of such things.

Therefore, the world is God's word or coherent oration addressed to man, in a continuous development. Things and, generally, all existing items have been brought to existence through the Godly Word and they carry the Word within them. God shows us His love through the world considered as a gift in order to fulfill the progressive dialogue full of love with us. But, when speaking of a dialogue, an answer is needed to be addressed by man to God, as a gift. What can man give God as a gift from himself? Nothing, except giving up certain gifts, handing them back to Him. By giving up, man chooses an ascetic life. The ascetic life results in answering. In exchange for the world offered by God as a gift, the ascetic life is the gift offered Him by man. And the core of this dialogue of gifts between God and man is that they offered themselves to each other.

Consequently, the world is not autonomous, but theonomous, since it comes from God and goes back to God, maintaining an internal relationship with the Creation through uncreated energies, because otherwise the world would go back to the nothingness wherefrom the Creator took it out to the light. No sooner had man ignored the essence of such a gift and fallen into temptation, than God sent His Son as a sacrificial offering on the Cross. From that moment on, the Holy Cross has been the window the world must be seen through in an eschatological perspective.

Adam and Christ are the human types that certify the alternative relationships between man and nature. We are faced either with the enslavement of the spirit by the sweet fruit of the sensible side of nature, or with the restraining of nature through the power of the spirit along with the effort of giving up the pleasures and acceptance of the painful sacrifice on the Cross. The sin of the first humans not only opened the gate to disorder, suffering, pain, and unhappiness for the human life, but it changed the harmony that ruled the surrounding nature at first. Corrupted by man, nature awaits healing and restoration from man as well. Taking human nature, the Saviour built His human life not only with the human persons' lives, but also with nature. He wandered through the wheat fields; the flowers of the land and the birds were close to Him; He accepted the Baptism in the water of river Jordan, and nothing was left

out from the Holy Spirit's Grace drifting above the waters at the time of Genesis. He hallowed the human nature that he took for Himself, with the exception of sin. Therefore, Christ left to His disciples and, through them, to His followers, the power of the perpetual blessing of nature; thus, through the holy services, the power of the Word goes beyond the human being, on to the whole creation.

We should also mention that the primordial water from the Holy Book is not identical with the water defined after that. It is not an inert matter standing by itself in front of the Holy Spirit. This water is God's creation and virtually keeps inside the reasons and powers of the Logos, which would have been activated by the Holy Spirit. Part of it became water, which was similar to the primordial "water", representing the mobile reserve that brings everything to life and keeps it in motion. Nothing is born and nothing stays alive or in a certain motion status without the water moved by the Holy Spirit.

All organisms that cannot use the water become motionless and break in pieces, as if they were dead. The decline results in the decay of the relationship with the Holy Spirit, Who does not have complete communication with the humans and therefore become rock-solid, entailing the bodily and spiritual death. The embodiment of the Godly Word brought back the Holy Spirit into complete communication with the Creation, which makes indispensable the Mystery of Baptism. It was useless for Christ, as the Eternal Spirit had recognized Him, but is useful for the common people, because the Spirit merges with the water as a supporter of life that is not subjected to death — to quote Father Dumitru Stăniloae<sup>6</sup>. In other words, The Word becomes Flesh. In the Word, Water and Spirit merge again. He plunges into the river Jordan and the Pigeon flies above the water. His Resurrection would transform the deadly water into a living one. One more detail, a linguistic one. It is about the Slavic word *mir* (unction, holy oil). At Baptism, *the unction with the Holy Oil* is the Mystery that conveys to the newly baptized the powers and gifts of the Holy Spirit, which are needed for growing, enhancing, and strengthening the new Christians in their new life in the name of Jesus. In Russian, *mir* also means *cosmos, world, and harmony*.

To what extent the word can still influence the present-day reality? How much can we recover today of the distance between the words *He said* and *it has been done* in the Creation Book? Are we closer to the *Genesis* or to the *Apocalypse*?

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6. Pr. prof. Dumitru Stăniloae, *Teologia dogmatică ortodoxă* (Orthodox Dogmatic Theology), III, The Biblical and Missionary Institute of The Romanian Orthodox Church Publishing House, Bucharest, p. 37.

There is a passage in the film produced by the Danish director Lars von Trier, *Breaking the Waves*, which could leave many persons voiceless. The main feminine character is a model of sacrificial love for her husband, passing through all kinds of humiliations that the persons we are living with can subject a woman to, with the same innocence, ingenuousness, and purity, although the humiliations did not avoid the intimacy of her body. She enters a church. In there, after a while, with her soul bleeding because of the hypocrisy of the people, she says something outstanding: "I cannot love the word. How can someone love a word? A word is something dead. I want to love the living Christ."

We should not think superficially and blame the lucidity full of tragedy and the completely legitimate wish of this woman. Why legitimate? Because behind her words there are the painful aspects of the way we understand and consider our relationships with the restoring capacity of the Logos, with the living active substance, in other words, with the presence and deeds equally, not only with the sophisticated theoretical aspects of the continuously speaking world we belong to. I have to admit that we are rather inclined to comments than deeds, to marginal imprecation rather than amphitheatre combat, to the periphery rather than the centre, to a destructing hermeneutics rather than a creative attitude, and I think that we could find here an explanation for the presence of the unstoppable successful autochthonous talk-shows. We want to maintain the clerical soft language and we should only say that we are assiduous and hardworking persons for speaking in vain.

Undoubtedly, the Logos became Flesh. The fact that the modern man does not believe in this fact any longer represents the proof of our lack of sensibility for the transcendent and for our incapacity for echoing the movements and signals of the Saviour. Another fact, which is not less true and saddening, is that our Theology directs, more or less firmly, and makes significant steps towards the framework of the contemporary world in which "the collision between civilisations" seems to stand rather under the sign of the collision between the religious bigotry, on the one hand (which *a priori* brings the culture into the swampy and full-of-traps realm of derision and decadence), and the skidding of the modern and of the post-modern culture (equally secularized and leading to secularisation), on the other hand. In this context, God, whether not "dead" ("God is dead"), barely exists meanwhile, as a remote reality isolated within the transcendent sphere where — prudently — He should not be disturbed. When I say that T.S. Eliot's phrase "the dissociation of sensibility" comes to my mind, which takes into consideration the disease that occurred back in the 17<sup>th</sup> century, from which we have never recovered, consisting in the dissociation represented by the way in which the refined language

of the 18<sup>th</sup> century no longer goes hand in hand with the refinement of the feelings — on the contrary we could say. In other words, the disease consists in the dissociation between thinking and feeling, between mind and heart. There is a separation between reasoning and feeling, between the sciences and the arts, between theology and spirituality, and between the exact sciences and the humanistic ones. This dissociation was enhanced during the Enlightenment and worsened during Romanticism; it ultimately resulted in the rationalist annihilation of the tradition and of the humanist-theological disciplines. Under the pressure of the epistemological model of the Enlightenment, the humanist and theological disciplines later on aimed at adopting, by imitation, the objectivity of the exact sciences model. The horizon of skidding has become more diverse mainly since contemporary theology has become a university science, under the auspices of the modern way of thinking. For this science, the object of its research is more and more distant from its author. The fact that the fracture between Theology and spirituality is connected by the dissociation in our culture is also certified by another linguistic detail I would like to mention. Unlike us, the Greek Fathers used the same word (*Theologia*) for naming Theology and spirituality.<sup>7</sup>

The result of such a dissociation is brought to light by the words of the main character in Lars von Trier's film: "I cannot love the word. How can someone love a word? A word is something dead. I want to love the living Christ."

The living word is the one that almost simultaneously determines the fact and suppresses our status as witnesses of our own decay. The Word of God and the Word of Christ are Words of action. Still, this world, to which we offer not only our lives, but also our salvation and our families' salvation, makes us shapeless witnesses and creates our dependence on this status, which is fed by the TV screen and ensures the comfortable and pleasant, the solitary and solidary intimacy, the unprecedented status of collective sinners, together with the imaginary release from the incidence of personal responsibility. In the same manner in which God is not the personal God, but the God merged into the nature, our responsibility is no longer a personal, but a collective one, and sin is nothing but a global bill paid from our own wallets.

The photo that won the Pulitzer Prize in 1994 was taken during the famine in Sudan. This photo illustrates a little boy who painfully crawls towards the United Nations' food camp, placed about one kilometre away. Behind the boy, at a proper distance, a vulture waits for him to die, so it

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7. Andrew Louth, *Deslușirea Tainei (Understanding the Mystery)*, Deisis Publishing House, Sibiu, 1999, pp. 34-36.

may eat him. This photo shocked the entire world. Nobody knows what happened to the boy, not even Kevin Carter, the photographer, who left right after he took the image. Three months later, Kevin committed suicide as a consequence of depression, according to the newspapers. Here is what was written in his diary: "Dear Lord, I make this promise I will not squander the food no matter how bad it would taste or how full my stomach would be. Please, God, protect this little boy, guide him and take him out from his misery. Please, make us more sensible to the world around and help us not to be blinded by our egoism and interests. I hope this photo will always be useful as a memento that would tell us how lucky we are and we should never consider that we are entitled to have everything. Dear friends, please send this photo to your friends. Let us pray for escaping from suffering everywhere in the world and let us send to other persons such mementoes full of friendship. Think about and look at this picture whenever you complain about the food you have on your tables, or when you see how much food is squandered. This is the real world we live in. I thought I should have shared with you".

Still, why did Kevin Carter commit suicide? According to the newspapers, it was the depression that urged him to do it. Saint Seraphim of Sarov says *despair comes from cowardice, laziness, and meaningless words*<sup>8</sup>. Kevin Carter could have thrown his valuable photo camera, perhaps a couple of thousand dollars worthy, at the eagle and chased it away from the child, or could have taken the boy up and carried him to the United Nations' camp. Obviously, he did not do any of this, since we find out that he left as soon as the snapshot was taken and nobody knows what happened to the child. What did Kevin Carter understand from this terrible fact? He understood that, from that moment on, he should not have squandered the food and wanted to convey this message to the whole world. It is typical for the *dead word* that the woman in Lars von Trier's film said she could not love! Where is the living Christ in Kevin Carter's letter? Going a little bit further, where are our living words, as we are theologians and persons who speak with and about God in our present-day world?

The memory of water and the patterns induced by words, revealed in professor Masaru Emoto's experiments, are nothing but models observed in the human being through the pattern of the Word. But the embodiment of the Word, as Creator Logos, through which every thing was created, reveals the Redemptive Logos, through which the world was re-created as a result of His Embodiment, Sacrifice, Resurrection, and Ascent to Heaven.

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8. Saint Seraphim of Sarov, *Viața, învățăturile și profețiile Sfântului Serafim de Sarov (The Life, Teaching, and Prophecies of Saint Seraphim of Sarov)*, Saint Seraphim of Sarov Hermitage, 1999, p. 133.

This double connection with the world, as Creator and as Redemptive Logos, compels us to understand the world not as reality reduced to its material dimension, but to see its spiritual meaning as well, through its intrinsic rationality and its inner logical order, resulted from the supreme Rationality of the Divine Logos, according to Saint Athanasios the Great. At the same time, this rationality of the Creation allows the knowledge of the micro-cosmos, as proved by the sciences nowadays and the knowledge of God. The universal order created by Christ as Creator and Redemptive Logos allows man to discover his origin deeply rooted in God's transcendent reality and in the immanent reality of the Cosmos. Professor Masaru Emoto's experiments also certify another phenomenon, *i.e.*, the gap between the present-day scientific development and spiritual regression. Ultimately, the water scarcity we are faced with speaks about the scarcity of the Word shared by the humans at the beginning of this millenium, that we still consider to be the third one since Christ.



# Discrete Structures as Holistic Models

FLORIN CARAGIU\*

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## Introduction

In the Eastern Orthodox ecclesiology, the Church is holistic par excellence, being the Body of Christ, the living, corporate organism of the Divine Word or Logos. Within the Church, existence itself acquires additional meaning, being transfigured by a liturgical dimension emphasizing the spirit of Communion [10]. The temporality is a liturgical one, driven by the worship of the Holy Trinity — one may say that the foundation of this liturgical temporality is the “tri-affirmation” [5]. The persons of the Saints themselves are fundamentally holistic: they radiate with an everlasting love whose source is the Triune message of healing and redemption proclaimed by the whole Church. The personal path towards salvation of an individual member of the Church cannot be understood in separation from the healing mystery of the Church herself, and this very statement is an expression of the spiritual holism proclaimed, explicitly or implicitly, by all Eastern Orthodox believers.

In general, the human being is a microcosm: the very fact that men are *created in the image and likeness of God* (*Genesis*, 1, 26) confers an iconic dimension to humanity: personhood has a holistic character.

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The Eastern Orthodox theology, as articulated by Saint Maximus the Confessor, sees nature itself displaying a fundamental relationship with Christ — the Divine Logos, through the *logoi of creation*. The logoi may be seen as “vectors” of a unifying spiritual meaning, pointing from the created realm towards the realm of the Uncreated — the Divine Logos, thus facilitating the created beings’ contemplation through the spiritual eyes of the *nous* or spiritual intellect [9].

Holism appears, articulated in one form or another, in most modern endeavors: science (where ideas of chaos and complexity are penetrating the mainstream), philosophy (especially the philosophy of language), health and medicine, sociology, economics etc.

Especially interesting are the aspects of holism in the foundations of quantum mechanics, where it becomes — unavoidably — mingled with issues involving entanglement and non-locality. Holism is often associated, but not identified, with inseparability [6].

In [1] holism is associated to the “deterministic” outcome of a certain global measurement performed on a quantum macroscopic state whose proper parts behave randomly. In the present paper, we consider a class of discrete probabilistic mathematical models based on error-correcting codes. Some of them exhibit the type of holism signaled in [1]: a global determinism with random proper parts. Others examples of the same type have the surprising property of having “parts”, which themselves have a holistic character! All models considered in this paper are treated in a classical manner. For a discussion of quantum analogues of the code-based models presented in this paper, see [3] and [4].

### Deterministic Whole, Random Parts

To construct discrete models by exhibiting features of holism, we will use sets of sequences of 1s and -1s, of equal length. This first example will be based on the parity check code of length 3. It involves the following four sequences:

$$\begin{aligned} & (+1,+1,+1) \\ & (+1,-1,-1) \\ & (-1,+1,-1) \\ & (-1,-1,+1) \end{aligned}$$

Let us imagine every such sequence as a possible state of a three-cells device, with every cell  $i = 1,2,3$  hosting a  $\pm 1$  local variable (spin)  $s_i$ . For simplicity, we will assume that all the states are equally probable, that is, our toy system can be, with a probability of  $1/4$ , in each one of the four

states. Let us note that the product  $s_1s_2s_3$  of *all* the spins is 1 for each state, so that the expectation value  $E(s_1s_2s_3)$  for the product of all the spins of the system is 1.

On the other hand, if we consider a set of cells which is non-empty and not equal to the whole set  $\{1,2,3\}$ , then it is not hard to see that the expectation value for the product of the spins hosted by all the cells of that particular subset is zero! That is,

$$\begin{aligned} E(s_1) &= E(s_2) = E(s_3) = 0 \\ E(s_1s_2) &= E(s_2s_3) = E(s_3s_1) = 0 \end{aligned}$$

For example,  $E(s_1s_2) = 0$  follows from the fact that out of the four possible states, two of them (the first and the fourth in the above listing) have  $s_1s_2 = 1$ , while the other two (the second and the third) have  $s_1s_2 = -1$ . Let us note the technical requirement for the set of cells to be non-empty: an empty product is by definition equal to 1 (and, similarly, an empty sum is defined to be 0), but there could be no measurement in that case.

Thus, we can see that the “parts” of our system behave in a “random” fashion, while the “whole” is deterministic. A new feature (determinism) emerges when we pass from the realm of (proper) parts to that of the *whole* system. This is a classical way of illustrating the quantum phenomenon described in [1]. We will see that this model can be further generalized by using binary linear codes.

We can construct similar examples of holistic models with four or more cells: in the list of states, we will include all  $\pm 1$  strings of length  $n$  with the product of the spins being 1. The number of such states is  $2^{n-1}$  and, as before, we will assume that the states of the  $n$  cells system are equally probable. In the case of 4 cells, the 8 states of such a system with 4 cells is:

$$\begin{aligned} (+1,+1,+1,+1), (+1,+1,-1,-1), (+1,-1,+1,-1), (-1,+1,+1,-1), \\ (+1,-1,-1,+1), (-1,+1,-1,+1), (-1,-1,+1,+1), (-1,-1,-1,-1). \end{aligned}$$

Each of these states can appear with a probability of  $1/8$ . As before, we have:

$$E(s_1s_2s_3s_4) = 1,$$

that is, the whole is “deterministic”, and

$$\begin{aligned} E(s_1) &= E(s_2) = E(s_3) = E(s_4) = 0, \\ E(s_1s_2) &= E(s_1s_3) = E(s_1s_4) = E(s_2s_3) = E(s_2s_4) = E(s_3s_4) = 0, \\ E(s_1s_2s_3) &= E(s_1s_2s_4) = E(s_1s_3s_4) = E(s_2s_3s_4) = 0, \end{aligned}$$

that is, the proper parts are “random”.

Indeed, to show that  $E(s_1s_2) = 0$ , let us notice that out of the 8 possible states of the system, four have  $s_1s_2 = 1$  and four have  $s_1s_2 = -1$ .

To establish a relationship with the binary linear codes, it is more convenient to use an additive notation. In that case, instead of the  $\pm 1$  variables  $s_1, s_2, s_3, \dots$ , we will use 0–1 (binary) variables  $x_1, x_2, x_3, \dots$ . We have to be careful here, because the addition of 0–1 variables must be performed modulo 2, so that  $1 + 1 = 0$ . The following table can be seen as a quick mini-dictionary that can help us translate back and forth between the multiplicative and the additive notation.

| <i>MULTIPLICATIVE – ADDITIVE MINI-DICTIONARY</i> |                       |
|--|-----------------------|
| MULTIPLICATIVE NOTATION                          | ADDITIVE NOTATION     |
| 1  | 0                     |
| -1   | 1                     |
| $s_i$  | $x_i$                 |
| $s_i$ 's are 1 or -1                             | $x_i$ 's are 0 or 1   |
| $(-1) \times (-1) = 1$                           | $1 + 1 = 0$           |
| $s_i s_j$  | $x_i + x_j$           |
| $s_i s_j s_k = 1$                                | $x_i + x_j + x_k = 0$ |

A linear binary code of length  $n$  is a set of 0–1 strings  $(x_1, x_2, \dots, x_n)$  defined by a set of linear equations. For example, the parity-check code of length  $n$  is defined by the single equation:

$$x_1 + x_2 + \dots + x_n = 0,$$

where  $x_1, x_2, \dots, x_n$  are bits. Let us note that the multiplicative translation of the above equation is

$$s_1 s_2 \dots s_n = 1,$$

which is exactly the rule we used to design our  $\pm 1$  strings. For more on the theory of error correcting codes, see, for example, [7] or [8].

### The Holism of the Parts

In this section, we will provide two examples illustrating holistic features displayed by parts (proper subsets of cells, in our discrete toy models). The first one is obtained by duplicating the parity check code of length 3.

We will get a code of length 6 consisting of binary strings  $(x_1, x_2, x_3, x_4, x_5, x_6)$  satisfying the following system of equations:

$$\begin{cases} x_1 + x_2 + x_3 = 0 \\ x_4 + x_5 + x_6 = 0 \end{cases}$$

By using our multiplicative-additive dictionary, we can say that the multiplicative analogues  $(s_1, s_2, s_3, s_4, s_5, s_6)$  satisfy the equations:

$$\begin{cases} s_1 s_2 s_3 = 1 \\ s_4 s_5 s_6 = 1 \end{cases}$$

The following is a list of all  $\pm 1$  strings of length 6 satisfying the above relations. As before, we consider all strings to be equally probable:

$(+1, +1, +1, +1, +1, +1), (+1, +1, +1, +1, -1, -1), (+1, +1, +1, -1, +1, -1), (+1, +1, +1, -1, -1, +1),$   
 $(+1, -1, -1, +1, +1, +1), (+1, -1, -1, +1, -1, -1), (+1, -1, -1, -1, +1, -1), (+1, -1, -1, -1, -1, +1),$   
 $(-1, +1, -1, +1, +1, +1), (-1, +1, -1, +1, -1, -1), (-1, +1, -1, -1, +1, -1), (-1, +1, -1, -1, -1, +1),$   
 $(-1, -1, +1, +1, +1, +1), (-1, -1, +1, +1, -1, -1), (-1, -1, +1, -1, +1, -1), (-1, -1, +1, -1, -1, +1).$

As in the previous cases, the expectation value of the full product of spins is  $E(s_1 s_2 s_3 s_4 s_5 s_6) = 1$ . But it is no longer the case that the expectation value of the product of spins in any proper subset is zero, because  $E(s_1 s_2 s_3) = E(s_4 s_5 s_6) = 1$ . In fact, the only non-empty subsets of cells with the property that the expected value of the corresponding product of spins is 1 are  $\{1,2,3\}$ ,  $\{4,5,6\}$  and the full set  $\{1,2,3,4,5,6\}$ . For all other non-empty sets of cells, the expected value of the corresponding product of spins is 0.

In the context of the fact that all 16  $\pm 1$  strings of length 6 are equally probable, a relation such as  $E(s_1 s_2 s_3) = 1$  tells that 8 strings have  $s_1 s_2 s_3 = 1$  and 8 strings have  $s_1 s_2 s_3 = -1$ . Let us note that technically only the sets  $\{1,2,3\}$  and  $\{4,5,6\}$  can be considered to be holistic in the sense of being deterministic with all the proper parts being random.

Let us now define, in the context of our class of examples based on  $\pm 1$  strings, a "holistic set" as being a non-empty subset of cells with the property that the product of the spins hosted by its cells is always 1 and, at the same time, for each of its non-empty parts, the product of the spins hosted by the corresponding cells takes the values 1 and  $-1$  equally often.

The holistic sets in the above example are  $\{1,2,3\}$  and  $\{4,5,6\}$ . There is a nice relationship between these sets and the structure of the equations satisfied by the corresponding code.

There are, in this case, four (not independent, though) equations satisfied by the code words  $(x_1, x_2, x_3, x_4, x_5, x_6)$ :

$$\begin{aligned}
0x_1 + 0x_2 + 0x_3 + 0x_4 + 0x_5 + 0x_6 &= 0 \\
1x_1 + 1x_2 + 1x_3 + 0x_4 + 0x_5 + 0x_6 &= 0 \\
0x_1 + 0x_2 + 0x_3 + 1x_4 + 1x_5 + 1x_6 &= 0 \\
1x_1 + 1x_2 + 1x_3 + 1x_4 + 1x_5 + 1x_6 &= 0
\end{aligned}$$

Let us note that if we look at the locations of 1's in the above equations, the sets  $\{1,2,3\}$  and  $\{4,5,6\}$  correspond to the second and the third equation, respectively. The second and the third equations are "minimal" in the following sense: they assert that the sum of a (non-empty) set  $V$  of binary variables is 0 (for the second equation  $V = \{x_1, x_2, x_3\}$ , while for the third we have  $V = \{x_4, x_5, x_6\}$ ), but there is no proper non-empty subset  $W$  of  $V$ , such that the sum of the binary variables in  $W$  is zero for any word  $(x_1, x_2, x_3, x_4, x_5, x_6)$  of our code. This means that the non-empty holistic sets are given by the minimal equations satisfied by the words of the code.

In the above example, the holistic sets are totally separated (disjoint). We will now give an example which illustrates the more complex situation in which the holistic sets interpenetrate each other. For this purpose, we will use one of the simplest non-trivial error correcting codes, namely the so-called [7,4] Hamming code.

The [7,4]1-error correcting Hamming code is a binary linear code of length 7 consisting of all binary strings  $(x_1, x_2, x_3, x_4, x_5, x_6, x_7)$  satisfying the following list of 3 independent equations:

$$\begin{aligned}
1x_1 + 0x_2 + 1x_3 + 0x_4 + 1x_5 + 0x_6 + 1x_7 &= 0 \\
0x_1 + 1x_2 + 1x_3 + 0x_4 + 0x_5 + 1x_6 + 1x_7 &= 0 \\
0x_1 + 0x_2 + 0x_3 + 1x_4 + 1x_5 + 1x_6 + 1x_7 &= 0
\end{aligned}$$

We have written them such that all variables are visible, in each case. The following is the list of all equations satisfied by the words of the [7,4] Hamming code. They are obtained by writing down all the possible combinations of the above independent list:

$$\begin{aligned}
0x_1 + 0x_2 + 0x_3 + 0x_4 + 0x_5 + 0x_6 + 0x_7 &= 0 \\
1x_1 + 0x_2 + 1x_3 + 0x_4 + 1x_5 + 0x_6 + 1x_7 &= 0 \\
0x_1 + 1x_2 + 1x_3 + 0x_4 + 0x_5 + 1x_6 + 1x_7 &= 0 \\
0x_1 + 0x_2 + 0x_3 + 1x_4 + 1x_5 + 1x_6 + 1x_7 &= 0 \\
1x_1 + 1x_2 + 0x_3 + 0x_4 + 1x_5 + 1x_6 + 0x_7 &= 0 \\
1x_1 + 0x_2 + 1x_3 + 1x_4 + 0x_5 + 1x_6 + 0x_7 &= 0 \\
0x_1 + 1x_2 + 1x_3 + 1x_4 + 1x_5 + 0x_6 + 0x_7 &= 0 \\
1x_1 + 1x_2 + 0x_3 + 1x_4 + 0x_5 + 0x_6 + 1x_7 &= 0
\end{aligned}$$

Let us note that every equation, except the first, is "minimal" in the sense discussed above.

Therefore, the holistic sets in this case will be:

$$\{1,3,5,7\},\{2,3,6,7\},\{4,5,6,7\},\{1,2,5,6\},\{1,3,4,6\},\{2,3,4,5\},\{1,2,4,7\}$$

Let us note an interesting global symmetry: every two cells belong to exactly two holistic sets: *e.g.* 1 and 2 belong to  $\{1,2,5,6\}$  and  $\{1,2,4,7\}$  etc.

For a word  $(x_1, x_2, x_3, x_4, x_5, x_6, x_7)$  of the  $[7,4]$  Hamming code, we can express the bit variables  $x_1, x_2, x_4$  in terms of the others as follows:

$$\begin{cases} x_1 = x_3 + x_5 + x_7 \\ x_2 = x_3 + x_6 + x_7 \\ x_4 = x_5 + x_6 + x_7 \end{cases}$$

If we now give 0–1 values to  $x_3, x_5, x_6, x_7$ , we obtain all 16 code words:

$$\begin{aligned} &(0,0,0,0,0,0,0), (1,1,0,1,0,0,1), (0,1,0,1,0,1,0), (1,0,0,0,0,1,1), \\ &(1,0,0,1,1,0,0), (0,1,0,0,1,0,1), (1,1,0,0,1,1,0), (0,0,0,1,1,1,1), \\ &(1,1,1,0,0,0,0), (0,0,1,1,0,0,1), (1,0,1,1,0,1,0), (0,1,1,0,0,1,1), \\ &(0,0,0,1,1,1,1), (1,0,1,0,1,0,1), (0,0,1,0,1,1,0), (1,1,1,1,1,1,1). \end{aligned}$$

By using the additive-multiplicative dictionary, we can say that our holistic system will have 7 cells and will consist of the following spin states, each occurring with a probability of  $1/16$ :

$$\begin{aligned} &(+1,+1,+1,+1,+1,+1,+1), (-1,-1,+1,-1,+1,+1,-1), (+1,-1,+1,-1,+1,-1,+1), (-1,+1,+1,+1,-1,-1), \\ &(-1,+1,+1,-1,-1,+1,+1), (+1,-1,+1,+1,-1,+1,-1), (-1,-1,+1,+1,-1,-1,+1), (+1,+1,+1,-1,-1,-1,-1), \\ &(-1,-1,-1,+1,+1,+1,+1), (+1,+1,-1,-1,+1,+1,-1), (-1,+1,-1,-1,+1,-1,+1), (+1,-1,-1,+1,+1,-1,-1), \\ &(+1,-1,-1,-1,-1,+1,+1), (-1,+1,-1,+1,-1,+1,-1), (+1,+1,-1,+1,-1,-1,+1), (-1,-1,-1,-1,-1,-1,-1), \end{aligned}$$

If we take, for example, the set  $\{2,3,4,5\}$ , then the product of the spins located at the cells 2, 3, 4 and 5 for each of the 16 equally probable macroscopic states in the above listing is 1: this determinism is the reason why we call  $\{2,3,4,5\}$  a holistic set. On the other hand, if we consider, instead, the set  $\{1,2,3,4\}$ , then the product of the spins located at the cells 1, 2, 3 and 4 for each of the 16 equally probable macroscopic states in the above list takes the following values:

$$+1,-1,+1,-1,+1,-1,+1,-1,+1,-1,+1,-1,+1,-1,+1,-1,$$

respectively. The fact that the values +1 and –1 appear equally, together with the fact that the 16 macroscopic states are equally probable is, in this context, an indicator of “randomness” for the proper part  $\{1,2,3,4\}$ , which is, therefore, not a holistic set.

## Conclusions

We have provided a few interesting examples of probabilistic discrete structures exhibiting certain well-defined holistic features. Our holistic structures can be viewed as devices hosting a number of  $\pm 1$  variables subject to a set of constraints. There are many more examples of this type: indeed, in principle, every binary linear code could generate a potentially interesting example! We have tried to keep our treatment at an elementary, self-contained level. Even if it is true that we need to consider quantum analogues in order to get a closer look at the type of holism manifested by the entangled states [3], [4], these code-generated classical examples do provide a series of first intuitive sketches of some aspects of the quantum reality. Thus, we hope this article will provide a methodological tool, as well as a database of relatively simple, classical examples, able to help researchers working at the interface between science and religion, an area where the idea of holism appears frequently.

Last but not least, our examples illustrate the fact that the “part” itself may display, in some cases, holistic features — a fact with potentially useful implications in the theology of the person — *created in the image and likeness of God*. Indeed, the human soul can be viewed as a Trinitarian unity of integralities: Consciousness-Subject, Spirit-Being and Language-Self [2].

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*Studies*



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## Religion et pensée utopique. L'utopie comme hérésie

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L'humanisme de la Renaissance a opposé au mythe chrétien médiéval du Jardin d'Éden un thème alternatif — celui de l'Utopie, la Cité de l'Homme. Or, le désir de construire un Paradis sur terre était, du point de vue des théologiens, une offense à Dieu. En commentant le mythe de la Genèse, la tradition patristique avait établi que, après le péché originel, Dieu avait interdit à jamais l'accès des hommes dans son jardin. Souillée par Adam, la condition humaine était incompatible avec la perfection de la première demeure des « protoparents ». Toute tentative d'y revenir équivalait à un deuxième péché, comme si, après avoir enfreint le commandement divin concernant l'arbre du savoir, les hommes eussent formulé le dessein de briser la prohibition concernant l'arbre de vie. Dans la conception chrétienne, l'homme ne peut plus espérer obtenir aucune forme d'immortalité ici et maintenant, dans cette vie et dans sa condition actuelle, avant d'avoir payé par la mort le prix de la désobéissance.

Il est vrai que, en compensation, Dieu a promis à ses créatures un destin eschatologique incomparablement meilleur, à savoir la réception dans le Royaume des Cieux. Et, pour rendre possible une telle ascension, il a envoyé son fils, Jésus-Christ, racheter le péché originel. Si la condition adamique originelle a pu être caractérisée par des pères tel Pierre Lombard comme une immortalité conditionnée (*posse non mori* et *posse mori* en même temps), la condition christique d'après le jugement est une immortalité inconditionnée (*posse non mori* et *non posse mori*).<sup>1</sup> Tout compte fait, par la mésaventure de la chute, l'humanité aura renoncé au Paradis terrestre en échange du Paradis céleste.

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1. P. Lombard, *Sententiarum liber II*, distinctio XIX, 1, in *Patristica Latina*, vol. 192, col. 690.

Cette promesse future était cependant liée à un temps eschatologique. La Jérusalem céleste ne s'établira qu'après la fin de l'histoire et le jugement dernier. De ce fait, toute autre promesse, soit de type millénariste, soit de type utopique, ne pouvait qu'être suspecte aux yeux de l'Église. Comme le dit très élégamment Gilles Lapouge, « la plus ancienne des utopies est celle de Babel, et Dieu, en foudroyant la tour, a simplement pris le soin de nous faire connaître, au début des temps, quelle est sa position sur l'utopie : il est *contre* » (Lapouge [1990], p. 14). Suivant les distinctions de saint Augustin, l'Utopie est une Cité de l'homme, qui se propose de faire concurrence blasphématoire à la Cité de Dieu.

Née et développée pendant la Renaissance et l'Âge classique, l'utopie participe au grand mouvement de laïcisation qui caractérise les aubes de la modernité. Elle est située, selon la pertinente observation de Gabriel Vahanian, au confluent de la sécularisation du christianisme et de la désacralisation du monde. Elle exprime une vision de l'univers iconoclaste, en conflit avec la conception traditionnelle : « S'ensuit que, pour Thomas More, l'utopie consiste d'abord en une critique aussi bien des lieux communs que des idées reçues. Il en donne ainsi le ton. De toute évidence, sa vision est utopique seulement dans la mesure où l'utopisme, qui en est l'essence, est foncièrement iconoclaste » (Vahanian [1992], pp. 23, 28).

Bien qu'issue d'un dessein similaire avec les promesses millénaristes, l'*Utopie* de Thomas More marque aussi, dans les mots de Miguel Abensour, « une prise de distance à l'égard du millénarisme chrétien, de la conscience chiliastique et sa dénégation de la temporalité. D'un même mouvement, n'est-elle pas volonté d'inscrire la vérité de cette tradition, la loi de communion, la recherche de l'*humanitas*, bref la dimension de justice, dans un nouvel espace politique ? » Par ses objectifs, « L'*Utopie* apparaît comme le masque dont se couvre une pensée nouvelle de nature à ébranler l'orthodoxie, à porter atteinte aux croyances et aux institutions sur lesquelles repose la société de son temps » (Abensour [2000], pp. 56-57, 105).

L'utopie est solidaire du nouvel humanisme de la Renaissance, promu autant par le rationalisme laïque que par les doctrines ésotériques et hermétiques. L'iconoclastie congénitale de l'utopie se manifeste dans son ambition de rehausser le statut de l'homme. Elle fait rien moins que redéfinir le rapport entre l'homme et Dieu. Si la théologie judéo-chrétienne suppose une distance infranchissable entre le Créateur et la créature, les nouvelles visions de la magie réémergente et de l'humanisme naissant supposent soit que l'homme est consubstantiel à la divinité et qu'il peut, par la gnose et les rituels, rallumer en lui-même l'étincelle sacrée, soit qu'il peut et doit prendre la place du demiurge.

« Ayant pris le parti de nier l'existence d'un Dieu radicalement différent du monde », montre Thomas Molnar, « l'utopiste découvre que son

seul recours est de concevoir un Dieu immanent radicalement identifié avec ce monde, le seul être conscient de lui-même, *créateur* de lui-même et de son environnement : *l'homme* » (Molnar [1973], p. 131). L'utopie est un nouveau jardin d'Éden, que l'homme, désireux de briser la prohibition divine concernant les paradis terrestres, construit par ses propres forces. La Cité de l'homme est l'expression d'un orgueil essentiellement luciférien. « Le penseur d'utopie », commente François Chirpaz, « témoigne d'une confiance sans faille dans le pouvoir de la raison humaine. [...] son intention ultime est de changer l'homme » (Chirpaz [1999], p. 137).

C'est pourquoi l'utopie est, dans l'analyse de Thomas Molnar, une « éternelle hérésie » : « d'importants écrivains utopistes sont des hérétiques aux yeux de la doctrine chrétienne ; ils veulent restaurer l'innocence première de l'homme — ses connaissances et son pouvoir — et, pour y parvenir, ils veulent abolir le péché originel » (Molnar [1973], p. 31). Dans son dessein de glorifier la nature humaine, l'utopisme n'hésite à contredire la doctrine chrétienne de la condition déchue. Comme le dit Judith Shklar, « l'utopie a été une modalité de rejeter la notion de péché originel, qui regardait la vertu et la raison humaine naturelle comme des facultés affaiblies et complètement compromises. Indifféremment de ce que les utopies classiques se sont proposées d'exprimer, elles sont toutes des attaques contre la théorie radicale du péché originel. L'utopie est toujours une image et une mesure des altitudes morales que l'homme peut atteindre utilisant exclusivement ses forces, < simplement par les lumières naturelles > qui sont à sa disposition » (J. Shklar, *apud* Manuel [1967], p. 104).

En niant la faute et la nécessité de la restauration de la condition humaine, l'utopisme s'attaque au noyau même de la théologie et de la sotériologie chrétienne, le rachat du péché d'Adam par le sacrifice du Christ. Comme on le sait, les utopies ont été massivement influencées par les explorations de la Renaissance. La découverte du Nouveau Monde a mis la civilisation européenne en contact avec des cultures aborigènes se trouvant apparemment dans un état prélapsaire. D'autre côté, l'un des arguments traditionnels contre l'hypothèse des continents antipodaux était que les apôtres de Jésus-Christ n'auraient pas pu y porter la bonne nouvelle. Corroborées, ces deux idées menaient à la conclusion que les « Indiens » et les sociétés utopiques australes se trouvaient dans un état d'innocence morale justement parce qu'elles ne descendaient pas d'Adam.

Cela revenait à un assaut contre l'institution de Jésus-Christ, l'Église. Puisque l'Église était solidaire de l'État, les utopies étaient les porteuses d'une critique généralisée de toute la civilisation chrétienne. Les états européens de l'époque classique étaient des sociétés théocratiques construites comme des pyramides, ayant pour sommet le pape, sur le côté spirituel, et le roi, sur le côté matériel, les deux oints par Dieu. C'est pour-

quoi, comme nous assure Thomas Molnar, « l'utopie est à la politique ce que l'hérésie est à la théologie » (Molnar [1973], p. 12). La révolte utopique vise non seulement le système ecclésiastique, mais aussi le système politique et social en place. Prise à la lettre, l'utopie donne naissance, dans le champ de la religion, à des communautés millénaristes et mène, dans la vie laïque, à la révolution.

Le projet utopique est donc hétérodoxe dans son cœur même. Bien que fonctionnant comme des capsules de sauvetage pour le fantasme du lieu idéal, menacé par la désacralisation du monde, les Paradis alternatifs proposés par des utopistes comme Cyrano de Bergerac, Margaret Cavendish, Tiphaigne de la Roche ou Giacomo Casanova, ne pouvaient être que des hérésies aux yeux des docteurs de l'Église et des représentants de l'État. Indépendamment des divers courants philosophiques dissidents auquel se rattachait tel ou tel utopiste<sup>2</sup>, le plan même de bâtir une Cité de l'homme était passif d'apostasie et d'anathème.

Construire une utopie est une critique intrinsèque de l'ordre de la création et de la capacité de Dieu à bien organiser le monde. Gilles Lapouge découvre une telle insurrection contre les dieux chez le premier architecte urbain grec, Hippodamos de Milet : « En substituant à l'architecture fatale de la tradition l'ordre gouverné de la ville orthogonale, Hippodamos porte verdict sur l'univers ourdi par les dieux. Il dit que cet univers est plutôt raté et que l'homme doit s'en mêler pour le corriger. Voici le Créateur rélégué dans ses lointains empires, on l'invite à légiférer ses domaines, non la demeure des hommes. C'est là le souci premier de tous les utopistes. Ceux-là même qui ont de la religion, tel Thomas More, consentent que Dieu est un spécialiste. Ils le confinent dans son office, qui est le ciel » (Lapouge [1990], pp. 14-15). En tant que constructeurs d'un Paradis terrestre, les utopistes de la Renaissance non seulement se proposent de concurrencer Dieu dans la création d'un lieu idéal, mais encore ils se passent de son aide, pensant qu'ils peuvent faire mieux.

Dorothy F. Donnelly a corroboré les modèles concurrents de la Cité de Dieu et de l'Utopie à deux conceptions sur l'ordre et l'harmonie. À la différence de la conception chrétienne de l'univers et de la société, qui continue de se refléter dans les monarchies de droit divin, Thomas More ne traite plus l'ordre naturel et l'ordre humain comme des séquences du

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2. Par exemple, Gabriel de Foigny a pu être traité, lui seul, d'athée scandaleux (Lachèvre, P. Sage), de libre-penseur, naturaliste et rationaliste radical (J.S. Spink), d'apologiste du rationalisme (Lanson, Hazard), de spinoziste (Bovetti, Pichetto), de déiste (René Pomeau, Antoine Adam), de sceptique (Cioranescu) et de chrétien fidéiste (J. Max Patrick). Voir Pierre Ronzeaud, *L'utopie hermaphrodite. La « Terre australe connue » de Gabriel de Foigny*, Avant-propos de Wolfgang Leiner, Marseille, Publication du C.M.R. no. 17, 1982, p. 172.

grand ordre cosmologique coordonné par Dieu. « Une lecture appliquée de l'Utopie révèle que, à la différence de ses prédécesseurs qui s'appuient sur la vision d'un ordre établi et maintenu ou bien par un principe premier de l'univers ou bien par un créateur-Dieu, le point de départ pour More est tout simplement notre implication dans ce monde et le dessein de trouver l'ordre dans ce monde. More ne commence plus par chercher les causes premières ou les principes sous-jacents de l'ordre temporel ; plutôt, il repère l'ordre dans notre implication dans la société » (Donnelly [1998], pp. 67-68).

Selon Dorothy F. Donnelly, c'est dans l'œuvre de Francis Bacon que s'accomplit le passage de la conception de l'ordre surnaturel à celle de l'ordre naturel. Questionnant la doctrine aristotélicienne et augustinienne des causes finales, Bacon a démontré qu'Aristote et Augustin expliquent les phénomènes par des principes premiers qui se trouvent en dehors des phénomènes eux-mêmes. Or, dans la nature, il n'y a pas de causes finales et téléologiques, l'humanité est la seule cause finale de la nature. Les hommes n'existent pas en vue d'une finalité eschatologique, ils sont les seuls à pouvoir se donner un *telos* (Donnelly [1998], pp. 76-77, 89). C'est ainsi que, au long des cent ans qui séparent les œuvres des deux chanceliers anglais, l'Utopie réussit à s'imposer comme l'alternative légitime à la Cité céleste, et l'homme, comme le démiurge devant prendre son destin des mains de Dieu.

Cette révolution anthropocentrique pourrait expliquer le paradoxe fondateur de Thomas More et de ses successeurs : pourquoi un bon chrétien, qui a fini comme martyr catholique, a-t-il cependant imaginé une Utopie païenne ? Pourquoi le christianisme ne joue-t-il aucun rôle dans l'établissement d'une société ayant inventé « une foule de choses que je souhaite voir établies dans nos cités » (More [1997], p. 125) ? La réponse de première instance serait que Thomas More a succombé, de même que les autres intellectuels de son siècle, à la fascination du Nouveau Monde. Aperçus à travers la perspective messianique et paradisiaque imposée par Christophe Colomb, les Amérindiens avaient réveillé des espoirs concernant le salut ici-bas, que l'Église avait censurés pendant un millénaire. Ils offraient l'exemple d'une civilisation adamique n'ayant pas été corrompue par le péché et, donc, ne devant pas être rachetée par le Christ. L'Utopie de Thomas More est païenne tout simplement parce qu'elle est préchrétienne.

Évidemment, les rêveries adamites se greffaient sur l'admiration que la civilisation classique exerçait sur les humanistes de la Renaissance. L'Antiquité apparaissait non seulement comme une source redécouverte de savoir et d'art, mais aussi comme une solution abandonnée, comme une voie possible qui a été délaissée à cause de l'avènement du christianisme.

La civilisation utopienne de Thomas More a la même complexité multi-culturelle que l'Antiquité tardive. Elle est un *melting pot* religieux, où se croisent des religions « naturalistes » (culte du Soleil ou de la Lune), polythéistes, messianiques (« il s'en trouve qui regardent un homme qui a brillé autrefois par ses vertus ou par sa gloire non seulement comme un dieu mais même pour le Dieu suprême ») et un monothéisme raisonné dédié à un « Être-qui-engendre », « divinité unique, inconnaissable, éternelle, infinie, diffuse à travers tout cet univers par sa puissance et non par sa masse, dont la nature échappe à toute explication parce qu'elle dépasse la capacité de compréhension de l'esprit humain » (Prévost [1978], p. 141).

Pour le bon fonctionnement de la société utopique, Thomas More propose une tolérance fondée sur une « théologie commune » minimale, acceptée par tous les Utopiens : « Tous les autres habitants, malgré leurs croyances différentes, ont ceci de commun avec ces derniers qu'ils affirment l'existence d'une seule divinité suprême, à laquelle on doit la formation et le gouvernement de l'univers » (Prévost [1978], p. 141). Le nom traditionnel donné par les Utopiens à ce Dieu créateur et pantocrateur serait « Mythra », Thomas More attribuant ainsi une couleur exotique, orientalisante et antiquisante, à la spiritualité de ses Utopiens. Il anticipe en quelque sorte le célèbre adagio de Franz Cumont, selon lequel, si l'Europe n'avait pas été chrétienne, elle aurait sûrement été mithriaciste. Toutefois, le mithriacisme des Utopiens ne serait, comme le démontre Léon Hermann, qu'un « déisme naturel, considéré d'ailleurs par Hythlodée comme une « préparation évangélique » au christianisme » (Hermann [1981], pp. 32-33).

Le déisme œcuménique de Thomas More est le résultat d'une sublimation rationnelle, à partir des divinités polythéistes, du concept de Dieu. La religion des Utopiens n'est pas une religion révélée, mais une religion naturelle et rationnelle. Le chancelier tire profit de l'argument traditionnel des Pères contre les antipodes (la révélation du Christ n'aurait pas pu être transmise aux peuples antipodaux) pour expérimenter dans son laboratoire fictionnel l'hypothèse d'une religion raisonnée qui n'est pas due à une révélation, mais à une (auto)construction théorique et morale. Le credo des Utopiens, formulé comme un raisonnement visant la condition humaine dans l'univers, est le suivant : « L'âme est immortelle : Dieu, qui est bon, l'a créée pour être heureuse. Après la mort, des récompenses couronnent la vertu, des supplices tourmentent le crime. » La démonstration implicite est que l'intellect peut arriver aux mêmes conclusions que les articles de la foi révélée. En fin de compte, c'est un plaidoyer pour la compatibilité et la convergence de la raison et de la croyance : « Quoique ces dogmes appartiennent à la religion, les Utopiens pensent que la raison peut amener à les croire et à les consentir » (More [1997], p. 79).

Les utopistes ultérieurs mettront, d'une manière de plus en plus accentuée, l'accent sur la raison au détriment de la foi. Ce sera une modalité de sécuriser la société utopique et de lui éviter les schismes fratricides et les guerres de religion qui ont secoué l'Europe aux XVI<sup>e</sup>-XVII<sup>e</sup> siècles. Gabriel Plattes publie, au début de la révolution anglaise, sa *Description of the famous Kingdom of Macaria* (1641), dans laquelle il offre la religion rationnelle comme préventif des confrontations fanatiques : « La religion [des Macariens] ne tient pas compte des différentes opinions et sectes, elle est fondée sur des principes infaillibles, qui peuvent être démontrés par des arguments invincibles, et par cela elle épargnera au grand texte les disputes extrêmes ; de cette façon, personne n'aura la possibilité de provoquer des schismes et des hérésies ; et aucune de leurs opinions ne risquera d'apparaître comme ridicule aux yeux de ceux de l'opinion contraire » (Plattes [1641], p. 7). Pour couronner cette rationalisation de la foi, Plattes propose que les ecclésiastiques macariens soient aussi des médecins, pour qu'ils puissent traiter non seulement les âmes, mais aussi les corps.

Au siècle suivant, à l'âge des Lumières, les livres révélés et la religion apparaîtront comme la cause à éviter à tout prix des guerres civiles et internationales. Louis Sébastien Mercier, l'auteur de la première utopie futuriste, imagine que, dans le Paris de *L'an deux mille quatre cent quarante* (1772) la foi se manifesterait d'une manière individuelle et intériorisée, alors que la théologie, cause de tant de disputes sanglantes, serait réduite au silence : « Comme nous ne parlons plus de l'Être Suprême que pour le bénir & l'adorer en silence, sans disputer sur ses divins attributs à jamais impénétrables, on est convenu de ne plus écrire sur cette question trop sublime & si fort en dessus de notre intelligence. C'est l'âme qui sent Dieu, elle n'a pas besoin de secours étrangers pour s'élaner jusqu'à lui. Tous les livres de théologie, ainsi que ceux de jurisprudence, sont scellés sous de gros barreaux de fer dans les souterrains de la bibliothèque ; & si jamais nous sommes en guerre avec quelques nations voisines, au lieu de pointer des canons, nous leur enverrons ces livres dangereux » (Mercier [1772], pp. 73-74). Voilà les livres sacrés devenus des armes !

Mais avant que les « législateurs » libertins ou athées dévoilent ce penchant anticlérical dur, la religion raisonnée des premiers utopistes contenait déjà des germes hérétiques. L'harmonisation de l'entendement et de la révélation opérée par Thomas More et ses successeurs avait pour conséquence la suppression de l'économie du péché et du rachat. La morale des Utopiens, construite sur « les axiomes de la religion et de la philosophie », est une éthique naturelle : « Ils définissent la vertu : vivre selon la nature. Dieu, en créant l'homme, ne lui donna pas d'autre destinée » (More [1997], p. 79). Dans une humanité dont la condition n'a pas été corrompue par le péché d'Adam, la passion du Christ n'est pas nécessaire pour la rédemption : suivre les bons penchants de la nature suffit.

En toute probabilité, le dessein de Thomas More n'était pas d'imaginer une hérésie adamite. L'Utopie est plutôt une critique à revers de la civilisation chrétienne européenne, un miroir moralisateur qui utilise la vertu des païens comme un *memento* pour les vices des chrétiens.<sup>3</sup> Si les Utopiens sont arrivés à un tel degré de civilisation, de spiritualité et de moralité uniquement en base d'une religion raisonnée et d'une éthique naturelle, comment se peut-il que les Anglais, qui ont bénéficié pourtant du don incomparable de la révélation et de l'incarnation de Jésus-Christ, se plaisent dans un état si misérable et détérioré ?

Cette idée sera le plus clairement formulée par Gabriel de Foigny, qui dit du royaume austral des hermaphrodites : « Il nous oblige d'en admirer la conduite, & donne de la confusion à ceux qui se disant Chrétiens, & assistez très particulièrement de la grâce, vivent pis que des Bêtes : pendant que des Payens fondez seulement sur des lumières naturelles, font paroître plus de vertus, que les plus Reformez ne font profession d'en garder » (Foigny [1990], p. 12). Claude Gilbert, un autre utopiste plaidant pour la religion raisonnée, annonce dans le titre même que l'*Histoire de Calejava ou de l'isle des hommes raisonnables* (1700) sera flanquée du « *parallèle de leur Morale & du Christianisme* ». Le motif pour lequel il fait publiques les maximes des « Avaites » est que « nous voyons beaucoup de Chrétiens dont la foi est si foible qu'elle n'est pas capable de les contenir dans leur devoir » (Gilbert [1990], pp. 1, 82).

Pour règle générale, on peut dire que les utopies qui dérivent en ligne droite de Thomas More ne sont pas chrétiennes. D'autres branches de la famille utopique tenteront de se réapproprier un modèle chrétien, mais le tronc principal reste fondamentalement hétérodoxe. Cette situation provient du fait que les populations nouvellement découvertes, qui ont fourni le combustible pour les rêveries utopiques, étaient foncièrement païennes. Toutefois, le projet de Thomas More et de ses successeurs directs n'était non plus anti-chrétien, mais plutôt préchrétien. La plongée des utopistes dans un passé mythique originel avait pour but de construire un éloge de la raison et de l'homme et une critique implicite du présent et de la société contemporaine : Voilà ce que l'homme peut faire seul, sans l'aide de Dieu ! Voilà quelle perfection peuvent atteindre les païens, même sans avoir bénéficié de la révélation ! Tandis que nous, chrétiens, voilà quelle civilisation misérable nous avons bâtie ! Et la liste de reproches adressés à l'Angleterre n'est pas courte : monarques tyrans et violents, conseillers ineptes ou flatteurs, iniquité de la justice, crimina-

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3. L'idée que More est un défenseur de la tradition chrétienne médiévale, présentant une cité païenne vertueuse pour provoquer la honte chez ses contemporains prétendus chrétiens, a été avancée par R.W. Chambers, dans *Thomas More*, London, Cape, 1976.

lité, débauche, ivrognerie, prostitution, pauvreté, maladies, disettes, goût pour le luxe, éducation vicieuse et immorale, etc.

Tommaso Campanella construit son utopie sur la même idée : qu'il y a une continuité parfaite entre la religion naturelle *abdita* et la religion positive *addita* ou, comme le dit Luigi Firpo à propos de l'*Atheismus triumphatus* (1631), que « la raison humaine bien orientée conduit tout naturellement au christianisme » (Luigi Firpo, note 58 à Campanella [1972], p. 27). La Cité du Soleil est une application et une démonstration de cette théorie : « Si ces Solariens, en suivant les seules lois naturelles, se trouvent si proches du christianisme, lequel n'ajoute à la loi naturelle que les sacrements, j'en déduirais volontiers que la loi véritable est la loi chrétienne et qu'elle règnera sur le monde le jour où on l'aura libérée de ses abus » (Campanella [1972], p. 59).

Posant que les populations en état de nature suivent un cours spontané vers les vérités de la religion révélée, Tommaso Campanella pense avoir trouvé le meilleur moyen pour réfuter l'athéisme. Cet axiome lui permet cependant de s'attarder d'une manière illicite, un peu trop longuement au goût des docteurs orthodoxes, sur les bienfaits de la société préchrétienne des Solariens. Inspirée des récits conjugués sur les Brahmanes des Indes, sur l'Héliopolis africaine et sur l'Empire Inca, la Cité du Soleil offre l'exemple d'un système de croyances païennes qui tendent plutôt vers une religion raisonnée que vers le fidéisme chrétien. Plus précisément, Campanella attribue aux Solariens toute une série d'éléments néoplatoniciens, stoïciens, hermétiques, astrologiques et ésotériques renaissants et les réorganise pour les faire retomber sur les dogmes chrétiens. C'était la même stratégie que celle adoptée par les mages blancs et les docteurs de la philosophie occulte de la Renaissance, désireux de faire rentrer leurs systèmes dans la doctrine de l'Église.

Par cette parade, Campanella soumet les thèmes de la création et de la destruction du monde, de l'organisme cosmique, de l'astrologie et du sort de l'âme à une pseudomorphose chrétienne. En ce qui concerne l'apparition et la disparition de l'univers, Campanella attribue aux Solariens plusieurs hypothèses, comme s'ils avaient à choisir entre différents systèmes philosophiques, et non entre plusieurs mythologies et religions : « Ils attendent la rénovation du monde, peut être même son anéantissement. Ils avouent ne pas savoir si le monde fut fait à partir du néant ou des débris d'autres mondes ou du chaos. Mais il leur semble probable, disons même assuré, qu'il fut créé » (Campanella [1972], p. 51).

Au sujet de la nature de l'univers, Campanella prête aux Solariens la théorie stoïcienne et hermétique du grand organisme cosmique, combinée à la physique aristotélicienne des éléments : « Ils font dépendre tout de deux principes physiques : le Soleil qui est père et la terre qui est mère.

L'air est un ciel impur, le feu vient du soleil et la mer est la sueur de la terre coulant à la chaleur du soleil et unissant l'air et la terre, comme le sang unit le corps et l'esprit de l'homme. Le monde est un grand animal et nous sommes en lui comme les vers sont dans notre corps ». La vision des correspondances organiques entre les parties de l'univers soutient d'habitude des disciplines ésotériques comme l'astrologie et la magie naturelle (et, de fait, les Solariens sont de grands observateurs des astres, prévoyant les changements qui affectent divers pays), mais Campanella prend soin, comme la plupart des astrologues de la Renaissance, de ne pas restreindre la toute-puissance de Dieu par un déterminisme astral : « Nous relevons cependant de la providence divine et non du monde et des étoiles avec lesquels notre rapport est contingent » (Campanella [1972], pp. 54-55).

Campanella conforte la doctrine de la libre volonté des hommes aussi, partant de la doctrine thomiste invoquée par les astrologues chrétiens, selon laquelle les astres ne peuvent influencer que les humeurs du corps, mais non l'esprit : « Ils croient au libre arbitre [...] Elles [les étoiles] agissent sans doute sur la vie des sens et l'orientent avec douceur et cela revient à dire qu'en suivant les sens plutôt que la raison l'on se met sous leur influence » (Campanella [1972], pp. 64-65). Avec un dédain monacal envers la matière, Campanella attribue aux Solariens la pratique d'incinérer les cadavres, empruntée aux Brahmanes indiens : « Ils n'enterrent pas les morts, mais les brûlent pour éviter l'odeur pestilentielle, la peste, pour les convertir en feu, élément si noble et vivant, qui procède du soleil et y retourne, et pour éloigner tout soupçon d'idolâtrie » (Campanella [1972], p. 49). Le manque à la doctrine orthodoxe de la résurrection des corps est à expliquer par le souci pour l'hygiène médicale, et aussi pour l'hygiène de l'âme, Campanella lançant une flèche contre le culte des reliques.

En tout cas, la destruction du corps n'est pas vue comme un obstacle pour le sort de l'âme. Réfutant la doctrine de la métempsychose, les Solariens « n'ont pas peur de la mort, parce qu'ils croient tous que l'âme est immortelle et qu'elle s'en va rejoindre les bons ou les méchants, selon les mérites » (Campanella [1972], pp. 28-29). Campanella retrouve sur des bases philosophiques la promesse eschatologique de Jésus-Christ. Ainsi, il subordonne la morale et le libre arbitre à l'ontologie chrétienne, selon laquelle Dieu représente l'Être et les diables le néant. Dans ce cadre, faire le bien est une option pour l'être et l'immortalité, alors que « la course au néant coïncide avec le mal et le péché. Le pécheur, selon eux, s'anéantit, le péché ayant à sa source non pas une cause efficiente, mais déficiente » (Campanella [1972], pp. 55-56). Autrement dit, l'individu fait, par son comportement éthique, un choix métaphysique, puisque ses gestes dans ce monde le dirigent, respectivement, vers l'être ou vers le néant.

Cette instrumentalisation de la doctrine du salut attire l'affaiblissement de celle du péché originel. Comme l'observe Jean-Yves Lacroix, l'Utopie est bien une cité parfaite, mais une cité des hommes, et non une cité de Dieu sur terre, ce qui veut dire que le mal et le péché n'y sont pas exclus de principe, mais combattus par des moyens d'eugénisme social (Lacroix [1994], pp. 144-145). Les Solariens reconnaissent volontiers « qu'il circule de par le monde une bien grande corruption », due à un « grand bouleversement dans les choses humaines ». Quand même, bien qu'ils « trouvent que les chrétiens sont bien heureux puisqu'il leur suffit de croire que tout le mal est venu de la faute d'Adam » (Campanella [1972], pp. 57, 58), ils rejettent l'idée, injuste de leur point de vue, que les enfants héritent la faute d'une manière corporative et indiscriminée. S'il y a transmission de défauts, elle est due, plutôt qu'à une faute commise par notre ancêtre à tous, aux mésaventures de la conception (d'où la surveillance stricte des couples destinés à la procréation) et à la mauvaise éducation donnée par les parents.

Par la suspension du péché, Campanella déplie, comme le montre Charles Rihs, « une grandiose cosmologie biblique, une conception eschatologique de l'histoire du monde, liée étroitement à l'ordre social et politique préconisé dans la Cité du Soleil. Ce *paradis* qu'il entrevoit n'est autre que le Royaume de Dieu de la Bible, annoncé par Jésus-Christ et prédit par les prophètes, qui couvrira un jour la terre, après une catastrophe cosmique » (Rihs [1970], p. 302). L'utopie de Campanella est très proche en esprit des millénarismes de la Renaissance ; seulement, elle n'est pas instituée par une intervention divine, mais par les forces de l'homme. C'est pourquoi elle a des affinités plutôt avec la Cité de l'Homme qu'avec la Cité de Dieu de saint Augustin.

Ce messianisme révolutionnaire ne pouvait qu'inquiéter non seulement le Saint-Office, mais aussi les autorités de l'État. Il est vrai que la Cité du Soleil était construite sur un modèle monastique, de forme pyramidale, rappelant l'édifice de la civilisation chrétienne, patronné par le pape. Il est vrai aussi que Campanella attribuait le devoir d'instaurer la Sainte République Universelle à l'Église catholique et à son correspondant séculier, Philippe II le roi d'Espagne. Mais le projet très concret de transformer la Calabre dans l'État universel ne pouvait que se heurter aux autorités espagnoles. Par voie de conséquence, Campanella et cent quarante « conspirateurs » (dont quatorze étaient des moines) ont été arrêtés et dix en ont été condamnés à mort.

Presque toutes les utopies et les robinsonnades sont des variations sur le thème de la pureté adamique récupérée. Gabriel de Foigny dit des Hermaphrodites du continent austral : « Il n'est que le péché qui nous ait donné de l'horreur de nous même, & qui ayant saly nôtre âme devant

Dieu, nous ait rendus insupportables. À voir ces gens, on dirait facilement qu'Adam n'a pas péché en eux, & qu'ils sont ce que nous aurions été sans cette cheute fatale » (Foigny [1990], p. 105). En effet, les Australiens ne connaissent les conséquences déplaisantes du péché : la honte et les habits (ils vont naturellement nus), les douleurs de l'accouchement, le travail pour gagner sa vie (végétariens, ils sont nourris à loisir par une nature prodigue), les chagrins et les mauvais penchants (comme l'avarice, la concupiscence ou la vanité), les maladies et la décrépitude.

Philippe Quarll, le « solitaire anglais » qu'Édouard Dorrington prétend avoir rencontré dans une île située à l'est du Mexique (1729), ressemble à un de ces anachorètes chrétiens irlandais retirés sur une île perdue de l'Océan : « Une longue barbe blanche lui descendoit sur la poitrine qui étoit nue ; des cheveux de la même couleur lui couvroient les épaules, et tomboient jusques sur ses reins » (Dorrington [1793], I, p. 21). Âgé de soixante-dix-huit ans, le sage donne pourtant à ses hôtes des preuves de santé, de vigueur, de force physique et de sérénité de l'âme enviables par tout Européen. Réconcilié avec la nature (ce qui annonce la sensibilité naturaliste de Rousseau et des préromantiques), Philippe Quarll a fui le destin prométhéen des civilisations européennes. Au lieu d'essayer de modifier par la force l'aspect de l'île, il s'adapte au mode de vie naturaliste, de manière que ni habits, ni nourriture, ni commodité, rien ne lui manque.

Le désir de faire de l'île en un « second paradis terrestre, excepté qu'il n'y a ici ni fruit défendu, ni femme qui puisse me tenter » (Dorrington [1793], I, pp. 25-26), témoigne d'un complexe régressif à multiples facettes, psychologique, ontogénétique, historique, théologique. Plus qu'un misanthrope, Philippe Quarll est un personnage névrotique, traumatisé par une vie picaresque (avec des faillites, des morts, des trahisons, des amours déçus), qui se retire dans son île pour trouver l'ataraxie. Sa régression psychologique à un état paradisiaque embryonnaire est solidaire d'un éloignement de la condition humaine. À la différence de Robinson Crusoe, qui s'empresse de civiliser le « sauvage » Vendredi, Philippe Quarll s'adapte, lui, au mode de vie des singes de l'île. « Témoins de la dignité et des péchés humains », les animaux ne l'acceptent que nu, sans vêtements : « En me voyant dans le même état où fut créé Adam le roi des animaux, et non point déguisé par mes habits comme les autres hommes, ils ont senti cette vénération profonde, qu'ils auroient toujours conservée pour nous, sans le péché qui nous obligea de cacher la beauté de nos corps sous des vêtements » (Dorrington [1793], I, pp. 68-69). La régression à la nature animalière est un retour au début de l'histoire biblique de l'humanité.

Le problème majeur est que, en dépit d'une déclaration de foi plutôt formelle, Philippe Quarll n'est pas du tout un ermite ou un mystique chrétien ; il ne soumet pas son « retour au Paradis » au piétisme et aux techniques chrétiennes d'ascèse. Il est plutôt un « esprit fort » qui médite avec pessimisme voltairien sur « les misères et les folies des hommes » (Dorrington [1793], I, p. 70). Si l'Espagnol qui accompagne Dorrington dans sa visite chez Philippe Quarll est convaincu que l'île est enchantée, que son habitant est un mage et que ses aides ne sont que des démons, le narrateur est, en revanche, en syntonie avec son protagoniste d'ailleurs, un individu très réaliste et pragmatique. La providence et le miracle sont exclus de ce paradis entièrement naturel. Comme toutes les sectes adamites, les Robinson se posant en nouveaux Adam vont à l'encontre de la doctrine du salut par le Fils, proposant un mode alternatif de délivrance, qui a fort peu à voir avec les promesses de l'Église.

Le continent décrit dans le *Nauffrage des Isles Flottantes ou Basiliade du Célèbre Pilpai* (1753) est un tel Paradis terrestre rétabli en dehors de la mission du Christ. Comme nous l'avons déjà vu, le « livre auguste » du philosophe gymnosophe Pilpai refait l'histoire biblique de l'humanité, l'adaptant aux desseins utopiques d'Étienne-Gabriel Morelly. Un grand continent méridional, habité par un peuple en proie à tous les maux et infesté par des monstres, est détruit par un cataclysme rappelant aussi bien le Déluge que l'anéantissement de l'Atlantide. Après la catastrophe, une partie de cette « Terre infortunée était demeurée attachée à ses fondements », le reste s'étant détaché en une multitude d'« isles flottantes ». Les îles, parties dans une grande dérive sur les océans, ont emporté les rescapés de l'humanité pécheresse, alors que la terre ferme restante fut repeuplée par un homme et une femme, frère et sœur, jouant le rôle de nouveaux Adam et Ève.

Imaginé sur le schéma de Cosmas Indicopleustes et de Moses Bar Cepha, qui partageaient la terre en deux grands continents, celui du Paradis biblique et celui de l'*oikoumènê*, le continent de Pilpai est le terroir d'une utopie morale régressive, alors que les îles flottantes sont une allégorie en négatif de notre monde, un monde se dirigeant inéluctablement vers l'apocalypse. La communauté utopique se trouve dans un état adamique, sans notion du péché : « On ignorait les termes infâmes d'inceste, d'adultère & de prostitution : ces nations n'avoient point d'idée de ces crimes : la sœur recevoit les tendres embrassemens du frère, sans en concevoir d'horreur ; ils resserroient quelques fois les liens du sang par ceux de l'amour » (Morelly [1753], I, p. 33). Or, cette population, la seule destinée à survivre à la catastrophe eschatologique qui anéantira les peuples des îles flottantes, descend des deux Robinson, et non d'Adam.

Dans toute une série d'utopies, la piété et les sacrements chrétiens ne sont plus nécessaires pour garantir une vie paradisiaque, ni même la rédemption. Pour ne donner qu'un exemple, dans le royaume utopique cabalistique placé par le Chevalier de Béthune dans *Mercure*, la déchéance et les défaillances de la nature humaine (les chagrins, les maladies et la mort) peuvent être prévenues exclusivement par une attitude rationnelle et une morale naturiste. « Pour éviter tous ces maux, il ne faut que suivre les conseils de la raison et les intentions de la nature ; c'est-à-dire, se délasser dans les plaisirs qu'elle inspire et permet, et se livrer avec modération aux goûts qu'elle a répandus parmi les hommes, avec une abondance et une variété prodigieuse. En suivant ce régime facile, on peut vivre éternellement dans *Mercure*, ou du moins aussi long-temps qu'on le désire » (Chevalier de Béthune [1750], pp. 39-40). La « loi de la nature » remplace l'éthique chrétienne et donne licence à toute variante de libertinage et d'hédonisme.

Les hérésies adamites qui nourrissaient les utopies avaient été renforcées et apparemment confirmées par la découverte des Amériques et par la perspective paradisiaque que les premiers explorateurs avaient appliquée aux aborigènes. L'image du « bon sauvage » avait remué et éveillé les fantasmes de l'Éden sur terre, de l'Âge d'Or (*aetas aurea, saturnium regnum*), des Îles des Bienheureux. Comme le dit très plastiquement Henri Baudet : « Le noble sauvage, inconnu dans le Livre de la Genèse, était né dans ce Paradis terrestre et paraissait avoir échappé à la colère de Dieu quand Adam et Ève y avaient été expulsés ; il paraissait y avoir demeuré pendant que les anges aux glaives de feu avaient barré à jamais notre entrée dans le jardin d'Éden » (Baudet [1965], pp. 26-27).

Et si, au XVI<sup>e</sup> siècle, le sauvage était « bon » grâce à Dieu, parce qu'il participait de la théodicée de la création sans être déchu de son statut initial, aux XVII<sup>e</sup>-XVIII<sup>e</sup> siècles il était « bon » grâce à la nature. La religion raisonnée propagée par les déistes suppose que, pour donner le meilleur de lui-même, l'homme ne devait que développer en lui les bienfaits et les penchants naturels. Il n'y a pas d'utopiste « libertin », de Foigny, Veiras et Claude Gilbert à Fontenelle, Tyssot de Patot ou Robert Paltock, qui ne vante les avantages (même non-humains, comme l'hermaphrodisme ou les ailes) offerts par la nature et ne prêche le devoir de remplir les potentialités de notre condition (même si elles vont apparemment contre la morale traditionnelle).

Par exemple, Robert Paltock construit son roman utopique *La vie et les aventures de Peter Wilkins* (1751) sur l'idée parfaitement anti-chrétienne que l'homme est né bon et que la civilisation le pervertit. Naufragé sur une île isolée, Peter Wilkins médite qu'il y est au moins « à l'abri de ces Maux qui répugnent à l'humanité dans la société » (Paltock [1973], p. 103).

L'isolement ne lui provoque pas d'aliénation, mais de la purification morale et de l'évolution spirituelle. En comparaison avec la race humaine, les Glumms et les Gawrys, une race aborigène merveilleuse d'hommes volants, offrent un contre-exemple de ce que la nature peut octroyer en plus que la civilisation. Non seulement ont-ils des ailes naturelles très efficaces et gracieuses, en contraste avec les piètres inventions technologiques des Européens, mais ils étalent une conception supérieure, du moins dans ses effets, au christianisme. Bien qu'idolâtres, ils pratiquent une religion raisonnée qui leur donne un avantage humiliant dans le traditionnel « tournoi » entre le narrateur et ses hôtes concernant leurs civilisations respectives (Paltock [1973], pp. 156-158, 213-215, etc.).

Après l'avènement de la cosmologie de l'univers infini, la présupposition d'innocence prélapsaire a été étendue aux habitants des mondes astraux. Si les natifs des continents nouvellement découverts devaient logiquement descendre d'une autre ligne généalogique que celle d'Adam (à la limite, des races merveilleuses du Moyen Âge), les peuples des autres planètes étaient susceptibles d'être le résultat d'une autre création que celle de la Genèse. Dans son traité de popularisation de la théorie des mondes habitables, John Wilkins reprend deux hypothèses de Campanella, selon lesquelles les extraterrestres peuvent être soit des populations non-adamiques, soit des races non-humaines : « Si ce sont des hommes, il croit qu'ils ne peuvent pas estre infectez du péché d'Adam : mais que peut estre ils en ont de leurs propres qui les ont peu assuiettir à la mesme misère que nous, dont peut estre, ils ont esté delivrez par le mesme moyen que nous, assavoir par la mort de Jésus-Christ » (Wilkins [1655], p. 211). En ce qui le concerne, pour éviter les complications de la conjecture des multiples Adams et des rachats répétés par Jésus-Christ, l'évêque anglais penche pour l'hypothèse des races non-humaines, donc exemptes de la présomption de la faute.

Nous nous sommes appliqués jusqu'ici à observer les déviations hérétiques de l'utopie par rapport à son noyau archétypal, le mythe paradisiaque. Reconstituant le jardin d'Éden sur terre, ou la Cité de l'Homme, l'utopie concurrençait la Cité de Dieu et remettait en question le rôle de l'Église dans l'histoire de l'humanité. À partir du XVII<sup>e</sup> siècle, la plage des alternatives et des contestations utopiques par rapport à la théologie et à la civilisation chrétienne s'est élargie d'une manière fulminante. Les utopies sont devenues les porteuses de visions et de projets hétérotopiques de toute coloration, protestants et huguenots, déistes et libertins, matérialistes et athées, réformistes et révolutionnaires, etc.

La première utopie française, *l'Histoire du grand et admirable Royaume d'Antangil* (1616), met en scène, dans l'organisation de la cité idéale, des

principes et des rêveries protestants. Antangil serait un grand continent austral, « incogneu jusques à présent aux anciens historiens et cosmographes » (*Le Royaume d'Antangil...* [1933], p. 29), situé au sud de Taprobane et de Java, entre le tropique du Capricorne et cinquante degrés vers le pôle antarctique. Les merveilles des Indes médiévales y sont transférées en bloc. De forme carrée, avec un grand golfe marqué au centre par un volcan actif qui joue le rôle d'un phare naturel, Antangil recueille la flore et la faune fabuleuse de la « matière d'Asie », *cocodrilles, hyppodromes, serpens*, lézards, ou un monstre étrange, grand « comme un cheval, et quasi d'un mesme corsage, aiant le museau d'un lion, les crins et poil lui couvrant la teste et la moitié du devant, le reste du corps estant escaillé, et aiant de grandes griphes comme les tygres ; il est amphibie, vivant sur terre et en eau » (*Le Royaume d'Antangil...* [1933], p. 35).

À la différence des utopies australes « païennes » de More ou de Campanella, le royaume d'Antangil est christianisé. L'annonciation du Saint Évangile y aurait été faite par « un Bracquemane très sçavant », nommé Byrachil, disciple de saint Thomas. Le Moyen Âge voyait dans l'apôtre Thomas l'évangéliste légendaire des Indes. Il était un des modèles du Prêtre Jean, roi et pontife mythique de l'Asie, que beaucoup d'explorateurs, missionnaires et ambassadeurs européens avaient cherché en vain. Suivant son exemple, son disciple Byrachil aurait converti le royaume d'Antangil, prêchant successivement devant le Roi, le Sénat et l'assemblée publique. Par la figure de ce sage brahman chrétien, l'auteur de *l'Histoire* transporte l'Empire du Prêtre Jean, dont l'existence en Asie était infirmée par les explorations de la Renaissance, sur un continent austral encore inconnu.

L'évangélisation d'Antangil permet à notre utopiste d'y imaginer une Église primitive, conforme aux idéaux protestants. Avec un service divin simplifié et très sobre, les chrétiens d'Antangil ne pratiquent que deux sacrements : le Baptême et l'Eucharistie. Ils n'acceptent pas l'idée de Purgatoire, ni les prières pour les défunts, ni les oraisons aux saints. Pourtant, l'Église antangilienne garde des éléments de la religion romane : le mérite des œuvres et le respect de la hiérarchie ecclésiastique, les costumes fastueux et imposants, etc. L'utopie, en tant que genre, confirme ainsi sa fonction d'espace d'essai, d'éprouvette imaginaire dans laquelle l'auteur configure le monde selon ses fantasmes et ses désirs cachés.

Les preuves de l'iconoclasme de l'utopie par rapport au système chrétien ne sont pas difficiles à multiplier. Geoffroy Atkinson observe que les relations de voyage des XVI<sup>e</sup>-XVII<sup>e</sup> siècles rapportaient « toutes sortes de *faits* qui ne s'accordaient pas du tout avec les doctrines de l'Église, et surtout avec le livre de la Genèse [...] Les déistes et les athées s'en

sont munis comme d'armes tirées de l'expérience ».<sup>4</sup> Par exemple, la description que les pères jésuites donnaient de la civilisation très ancienne des Chinois soulevait des points d'interrogation sur la doctrine biblique concernant l'âge du monde, ce qui a attiré la censure de ces récits.<sup>5</sup> D'autant plus, les voyages extraordinaires et les utopies du XVII<sup>e</sup> siècle sont devenus les porteurs d'idées hétérodoxes prétendument puisées dans des explorations données comme réelles.

Geoffroy Atkinson a tracé un panorama saisissant (quoique non exhaustif) des concepts déistes qui se retrouvent chez les utopistes de l'Âge classique : critiques indirectes de la révélation chrétienne, concernant le péché originel (l'absence des douleurs à l'accouchement, la nudité et le manque de pudeur), l'immortalité sans la rédemption, les parthéno-génèses, la chronologie de l'histoire humaine ; critiques directes des institutions chrétiennes, portant sur la tradition, sur l'Église et sur les prêtres et fondées sur l'analyse comparée des morales et des religions des Européens et des « sauvages » ; et propositions de concepts nouveaux, comme le progrès, le relativisme et l'œcuménisme religieux, l'opposition entre les anciens et les modernes, l'exotisme, la nouvelle sensibilité, le rationalisme et la méthode expérimentale.<sup>6</sup>

Antoine Adam a fait, à son tour, un inventaire des idées iconoclastes des libertins du XVII<sup>e</sup> siècle. Commentant le *Theophrastus redivivus* (1659), somme en six volumes de la nouvelle philosophie, le critique inventorie comme principales thèses libertines : le monde est éternel, les astres règlent notre destin, l'homme est un animal comme les autres, l'immortalité est une illusion, le sage aborde la mort sans terreur, les religions sont des inventions politiques, des impostures destinées à soumettre les peuples aux législateurs, bien qu'elles soient utiles pour le maintien de l'ordre social, etc. (Adam [1964], p. 17). À ces principes il faut ajouter les thèses atomistes et épicuriennes de Gassendi, le déisme, le rationalisme cartésien et la religion raisonnée, le panthéisme de Spinoza, etc.

Les « utopistes libertins » se sont faits les porte-parole de ce changement de paradigme. Cyrano de Bergerac construit ses fictions astrales comme des exemplifications de la nouvelle physique et cosmologie du XVII<sup>e</sup> siècle. Partant de Galilée et de Bruno, et de leur divulgateur John Wilkins, il démontre qu'il y a « des mondes infinis dans un monde infini ».

4. Geoffroy Atkinson, *Les Relations de voyages du XVII<sup>e</sup> siècle et l'évolution des idées. Contribution à l'étude de la formation de l'esprit du XVIII<sup>e</sup> siècle*, Paris, Édouard Champion, 1927, p. 186. Voir aussi *idem*, *The Extraordinary Voyage in French Literature before 1700*, New York, Columbia University Press, 1920, pp. 67, 138 et *passim*.

5. Cf. la *Défense de la Censure* du 18 octobre 1700, par le père Louis Ellies du Pin, professeur royal en philosophie à la Faculté de Théologie de Paris, *apud* Atkinson [1927], pp. 94-96.

6. *Ibidem*, chapitres VII et VIII, pp. 111-180.

Raillant l'anthropocentrisme, Cyrano de Bergerac donne à son *alter ego* littéraire, M. Dyrcona, la chance de découvrir que la Lune, le Soleil, les planètes et les météores sont des mondes habitables, habités par des races non humaines et apparemment plus avancées que notre espèce. Il pousse même l'ironie à faire condamner son personnage par les Lunairiens, dans un procès où ses accusateurs, portrait satirique renvoyé aux sceptiques bornés du XVII<sup>e</sup> siècle, ne veulent pas accepter que la Terre est un monde.

Pour exposer sa philosophie, Cyrano de Bergerac fait appel à un procédé typique de l'utopie : la confrontation d'opinions entre le voyageur et les Utopiens. Dans une sorte de tournoi, dans lequel M. Dyrcona se pose comme le défenseur du fidéisme chrétien, un philosophe lunairien présente une conception de l'univers peu orthodoxe. Le cosmos y est un « grand animal », dont les membres (les astres et les planètes) sont des animaux plus petits, habités à leur tour par des animaux de diverses grandeurs (l'homme n'est lui-même qu'un animal). En accord avec la vision des stoïciens, l'essence du monde est le feu, « le constructeur et le destructeur des parties et du tout de l'Univers ». Le Soleil de Cyrano de Bergerac joue, dans ce contexte, le rôle du *hegemonikon* stoïcien, cœur et organe central du grand organisme cosmique. Campanella, rencontré par M. Dyrcona dans le second voyage astral, lui fait remarquer que « Le Soleil est votre Père, et qu'il est l'auteur de toutes choses », c'est-à-dire un véritable *pyr technikon* dans les termes stoïciens (Cyrano de Bergerac [1977], pp. 405-409, 496).

Le feu est une matière unique, inaltérable et éternelle, composée d'atomes. En accord avec la vision épicurienne, les combinaisons des atomes forment les éléments physiques, qui vont des plus denses, comme la terre, aux plus raréfiées, comme l'éther et la lumière. Dans ce contexte, affirme le Lunairien, « il ne sera plus besoin d'admettre un dieu, puisque le monde aura pu estre sans luy ». S'il faut accepter une divinité, celle-ci ne peut avoir que la forme d'une puissance infinie, « source de toute force et de toute fécondité », qui n'est guère intéressée par les êtres éphémères, et que nos prières ne sauraient toucher (Cyrano de Bergerac [1977], pp. 408-423).

Avec la défection du Dieu théiste, la race humaine perd sa place privilégiée et, somme toute, son avantage eschatologique sur les autres vivants, à savoir la promesse d'immortalité. La théorie de l'âme éternelle est, selon le philosophe lunaire, une erreur orgueilleuse des humains, qui se flattent d'être au-dessus des autres espèces. Il est vrai que, pendant le deuxième voyage, dans le Soleil, Campanella enseigne à M. Dyrcona une théorie mystique et « kabbalistique » qui annonce l'anthroposophie spiritaliste des XVIII<sup>e</sup>-XIX<sup>e</sup> siècles. Le Soleil crée le monde par ses émissions de matière subtile, qui grossissent à mesure qu'elles s'éloignent de la source,

et, en même temps, récupère la masse perdue en attirant les exhalations qui se dégagent des planètes (c'est grâce à ce flux ascendant que la machine de cristal du protagoniste monte jusqu'au Soleil).

Les êtres vivants sont censés, eux aussi, rendre au créateur leur énergie vitale — l'esprit. À la mort, le cortège des âmes retourne au Soleil, dans une sorte d'*epistrophé* plotinienne appliquée à une physique matérialiste-atomiste. Or, une fois de retour à la source, les esprits se divisent en trois ordres : « Les plus grossiers servent simplement à réparer l'embonpoint du Soleil. Les subtils s'insinuent à la place de ses rayons ; mais ceux des Philosophes, sans avoir rien contracté d'impur dans leur exil, arrivent tout entiers à la sphère du jour pour en estre habitans » (Cyrano de Bergerac [1977], p. 493). Les philosophes sont des esprits purs, des génies de la même catégorie que les « daïmons » solaires (comme le daïmon de Socrate qui accompagne M. Dyrcona dans la Lune). À la mort, ils ne retournent pas dans la matière amorphe, mais conservent leur individualité et leur conscience. Ils habitent une région spéciale du Soleil — la Province des Philosophes —, et peuvent même se réincarner en divers êtres sur différentes planètes, pour poursuivre leur perfectionnement (Cyrano de Bergerac [1977], pp. 499-500).

Revenant au premier voyage de M. Dyrcona, le Lunairien fait savoir à son hôte que, en l'absence du concept d'une divinité personnelle et toute-puissante, les miracles et les interventions soi-disant divines, la résurrection du Christ incluse, ne sont que des inventions. La critique de la religion révélée débouche sur l'athéisme, le Lunairien tranchant court : « Il faut prouver auparavant qu'il y aist un Dieu, car pour moy je vous le nie tout à plat ». Cyrano de Bergerac clôt le « tournoi théologique » entre son protagoniste et le philosophe lunairien par une scène grotesque. Pendant que M. Dyrcona, horripilé par tant de blasphèmes, regarde son adversaire comme « l'Antéchrist », un « grand homme noir tout velu » entre dans la chambre et saisit le blasphémateur. Ayant été lui-même expulsé de l'Éden lunaire à cause de ses remarques impies, le narrateur a l'intuition claire que « ce diable sans doute emportoit mon hoste aux Enfers » (Cyrano de Bergerac [1977], pp. 423). Cyrano prend le devant de ses censeurs, maudissant et châtiant lui-même, d'une façon malicieuse évidemment, les personnages sacrilèges.

Gabriel de Foigny, moine cordelier passé au calvinisme, puis revenu au catholicisme, incapable de s'intégrer dans un système et de se soumettre à des normes données, regardé avec suspicion et poursuivi par les deux Églises, se sert de l'utopie australe pour construire sa propre proposition de société idéale. En plus d'une fiction paradisiaque, qui offre une alternative terrestre à l'Éden perdu, *La terre australe connue* (1676) met en scène une conception théologique tout aussi hétérodoxe. La religion

des Australiens est un déisme radical, dans lequel la transcendance et la perfection de Dieu sont poussées jusqu'à l'inaccessibilité et à l'apophatisme. Élaborer des théologies et théodicées sur Haab, la grande divinité solaire des Hermaphrodites, serait non seulement une activité inutile, par faute de repères et de certitudes, mais aussi une insulte. « Il est trop au dessus de nous pour se manifester à nous autrement que par ses effets », commente un sage australien, suggérant que discourir de Dieu dans le langage humain impliquerait le rabaissement et la minimalisation de sa condition. D'où la conclusion que « leur grande Religion est de ne point parler de Dieu » (Cyrano de Bergerac [1977], pp. 117 et 113).

La critique de la religion révélée et de la possibilité de communication entre Haab et les hommes (par visions, miracles, etc.) exclut toute médiation entre le Créateur et les créatures et donc nie le rôle de l'Église, des prêtres, des liturgies, de la prière. La souveraine altitude de Dieu suppose qu'il n'a pas de préférence, ni d'élus, et que les prétentions d'un culte ou de l'autre d'en détenir la vérité sont fausses. En fait, argumente le sage australien, les religions soi-disant révélées sont la source des intransigeances, des exclusions et des fanatismes. Les débats et les controverses religieuses provoquent des schismes : « Il faut conclure que lorsque cette division forme des querelles & des guerres, on abuse du père commun au point essentiel qui nous doit unir » (Cyrano de Bergerac [1977], p. 121). Victime de l'intolérance des deux Églises, de Rome et de Genève, Gabriel de Foigny plaide pour un œcuménisme déiste et une religion raisonnée, simplifiée et universelle. Comme le montrent B. Tocanne et Pierre Ronzeaud à propos de Claude Gilbert et de Gabriel de Foigny, la religion utopienne n'est pas une théodicée alternative, posant les fondements d'une nouvelle foi, mais une « croyance rationnelle dirigée contre le christianisme » (Pierre Ronzeaud, note 23, *apud* Cyrano de Bergerac [1977], p. 131).

Conscient de la charge hérétique de sa fiction, Gabriel de Foigny prend ses précautions. Il attribue le discours déiste aux Hermaphrodites, représentés par un vieux sage, alors que son protagoniste, Jacques Sadeur, se fait le défenseur du fidéisme chrétien. Parlant de l'immortalité de l'âme, le sage australien montre qu'une conception naturelle et raisonnée interdit d'attribuer aux hommes une condition ontologique et un destin eschatologique différents de ceux des animaux. La mort est la perfection des êtres incomplets, alors que l'immortalité ne convient qu'aux êtres complets et parfaits, à savoir Haab (Pierre Ronzeaud, note 23, *apud* Cyrano de Bergerac [1977], p. 130). Face à ce pessimisme libertin, Sadeur s'empresse de jouer un rôle de « dénégateur », faisant profession de foi en la résurrection par Jésus-Christ.

Un autre utopiste du XVII<sup>e</sup> siècle, Denis Veiras, met les thèses déistes dans la bouche des Sévarambes. La religion de ce peuple austral est tributaire de la mystique solaire montée par Ficin et les néoplatoniciens de la Renaissance. Toutefois, Veiras ne la subordonne ni au culte africain du soleil d'Héliopolis, ni aux civilisations inca ou aztèque, mais à la religion perse. Le réformateur du royaume, Sévarias, qui a changé l'ancien nom du pays de Stroukarambé en Sévarambé, aurait été « Persan de naissance et d'origine ». Prince de souche Parsi, persécuté par les Mongols, Sévarias serait descendu, avec une petite armée, dans un continent austral pas si inconnu que d'habitude, puisqu'il était familier aux peuples d'Asie. Après avoir conquis le pays, il y aurait imposé les coutumes de ses ancêtres, adoreurs du Soleil et du feu, qui coïncidaient d'ailleurs avec les croyances solaires des aborigènes. Dans l'oraison liturgique, les Sévarambes s'adressent au Soleil de la manière suivante : « C'est de votre bonté céleste qu'ils tirent toute leur subsistance comme ils en ont reçu la vie. Vous êtes l'âme du monde, puisque vous animez toutes choses et que rien ne peut se mouvoir sans vous » (Veiras [1994], p. 126).

Heureusement, Sévarias ne s'est pas égaré dans l'idolâtrie solaire, peut-être grâce à l'influence de son précepteur et ami, l'Italien Giovanni. Dans la religion qu'il enseigne à son peuple, le Soleil est défini seulement comme la manifestation visible et le lieutenant d'une divinité supérieure, toute-puissante. Ce Grand Dieu apparaît, dans l'oraison que lui adressent les prêtres des Sévarambes, comme le « Roi des esprits, qui comprenez tout, qui pouvez tout, qui êtes infini, éternel et immortel, invisible, incompréhensible, seul souverain et l'être des êtres » (Veiras [1994], p. 126). Plutôt philosophique que mythologique, cette conception est clairement déiste. Ce qui sépare néanmoins Denis Veiras de Gabriel de Foigny et de Claude Gilbert, c'est que, si ceux-ci concevaient le culte des Utopiens comme une attaque contre la religion chrétienne, celui-là le présente en tant que perfectionnement du christianisme, issu de la conjonction de la religion de Yahvé, de la mystique solaire néoplatonicienne (attribuée aux Parsis) et du rationalisme classique.

Par les Sévarambes, Denis Veiras porte une critique aiguë au fanatisme et aux guerres de religion. Ses Utopiens résolvent tout différend confessionnel uniquement par des controverses d'idées et des débats publics : « Il n'y a peut-être point de pays au monde où l'on s'échauffe moins pour la religion, où elle produise moins de querelles et de guerres ; au lieu que, dans les autres états, on la fait souvent servir de prétexte aux nations les plus inhumaines et les plus impies, sous le masque de la piété » (Veiras [1994], p. 196). Autant l'agnosticisme radical des hermaphrodites de Gabriel de Foigny (qui interdit à ses créatures de parler de religion) que le relativisme œcuménique des Sévarambes de Denis Veiras (qui

permet à tout un chacun de croire ce qu'il veut) ont pour résultat la paix civile et internationale.

Sur le plan institutionnel, la tolérance religieuse s'associe à une diminution du rôle de l'Église. Sans qu'il soit anticlérical, Denis Veiras opte pour un rituel simplifié, dans lequel le vice-roi (Sévarias se présente comme un lieutenant du Soleil sur la Terre) exerce la double fonction de grand pontife et de souverain séculaire. Le possible modèle en est le Prêtre Jean, *rex et sacerdos*, indice que les utopies australes se sont appropriées les thèmes des légendes européennes médiévales.

Denis Veiras ne crédite pas d'une grande efficacité sotériologique les rituels liturgiques et le piétisme. Le sort des hommes communs est une métempsychose évolutionniste qui, à travers les punitions ou les prix que s'attire chacun par son comportement, rapproche de plus en plus les esprits de la nature solaire : « L'opinion commune est, qu'après cette vie, il y a des récompenses pour les bons et des peines pour les méchants ; et que les âmes des hommes, au sortir du corps, en vont occuper des autres, plus près ou plus loin du Soleil selon le bien ou le mal qu'elles ont fait » (Veiras [1994], p. 200). De toute façon, Dieu ne joue aucun rôle dans le progrès ou dans la réincorporation de l'esprit au Soleil.

La fonction du Christ n'est point plus probante. Bien qu'ils acceptent le Nouveau Testament (grâce à la prédication de Giovanni), les Sévarambes se rangent du côté des hérétiques adoptianistes : « Ils ne croient pas que Jésus-Christ soit Dieu de sa nature, mais seulement par assumption ou par association à la divinité et disent qu'avant qu'il eût pris la nature humaine pour travailler au mystère de notre rédemption, il n'était qu'un ange, mais le plus excellent de tous les anges à qui Dieu avait donné toute plénitude de la grâce, l'avait élu pour son fils et choisi, entre tous ses compagnons, pour le faire l'instrument du salut des hommes » (Veiras [1994], p. 201). Dans ces conditions, l'Eucharistie n'a d'autre fonction que de faire remémorer la passion de Jésus-Christ et n'a point valeur de communion.

L'utilité que Denis Veiras est disposé de concéder à l'Église n'est donc nullement religieuse ; elle est seulement institutionnelle et morale. Tenant compte de la « pleine liberté de conscience » accordée aux Sévarambes, l'Église n'est pas censée contrôler et garantir un dogme, quel que ce soit, mais uniquement assurer l'harmonie des sujets. Elle n'est qu'un instrument contre l'anomie, « car les Sévarambes ont pour maxime de n'inquiéter personne pour des opinions particulières, pourvu qu'il obéisse extérieurement aux lois et se conforme à la coutume du pays dans les choses qui regardent le bien de la société » (Veiras [1994], p. 195). La religion est une convention ou un contrat social, nécessaire pour le maintien de l'ordre. D'où la conclusion pragmatique de Denis Veiras que la religion

des Sévarambes, « plus raisonnable et moins chargée de superstition », serait la meilleure solution à embrasser par tous les états.

Dans le cas contraire, les recherches théologiques trop poussées, les croyances et les superstitions trop florissantes, les institutions et les hiérarchies ecclésiastiques trop tentaculaires, les rituels trop lourds, tout mènerait à des dysfonctions, polémiques, désordres et guerres. Le pays de Sévarambé est un modèle offert à une Europe en proie à l'intolérance et au fanatisme religieux. Deux personnages historiques du royaume sont les symboles contrastants de ces deux régimes religieux et sociaux, opposant l'Europe et la Sévarambé : Stroukaras et Sévarias.

Stroukaras est le législateur religieux du continent austral d'avant la venue de Sévarias. Il est présenté comme un imposteur et un criminel, qui s'est servi de la crédulité des Australiens pour imposer un culte cruel et un régime tyrannique. En utilisant ses connaissances sur les herbes guérisseuses, les poisons et les pierres à propriétés merveilleuses, il a commencé par se poser en thaumaturge et « fils du Soleil » ou fils de Dieu (en étant moins qu'une parabole hostile de Jésus-Christ, comme ont cru y voir quelques commentateurs, l'allusion satirique paraît renvoyer plutôt à Louis XIV, le « roi soleil »). Un de ses « faux miracles », emblématique pour son manque de scrupules et sa cruauté, est le bûcher souterrain dans lequel il a fait incinérer ses opposants, prétextant qu'il s'agissait d'une punition divine.

Par la figure de Stroukaras, Denis Veiras critique la dérive superstitieuse de toute religion qui se défait de la raison et du bon sens. Il accuse dans la foulée la tradition catholique des miracles, dévoilant comme des supercheries des prêtres stroukarambes ce que les hagiographies chrétiennes offrent comme des miracles de Dieu, des apôtres ou des saints : la source qui jaillit sur la demande de Stroukaras (en fait, une fontaine souterraine amenée artificiellement à la surface), l'eau se « transformant » en sang (grâce à un colorant versé par les prêtres dans la rivière), le don d'incombustibilité (en fait une crème obtenue de quelque lézards résistants aux feux — des salamandres ?). Il critique aussi la dérive institutionnelle et morale des prêtres, qui n'hésitent pas à persécuter leurs opposants et à provoquer des schismes et des guerres confessionnelles.

La figure complémentaire, offerte en contre-modèle à l'imposteur Stroukaras, est celle de Sévarias. Sa venue de la Perse dans le continent austral est construite sur le patron biblique de l'exode d'Égypte. Sévarias y fait figure de nouveau Moïse. Dans une icône du temple central du royaume, « on voit Sévarias recevant de la main du Soleil les foudres du Ciel et le livre des lois qu'il a depuis laissé aux Sévarambes » (Veiras [1994], p. 186). La future Sévarambé est, pour les Parsis qui fuient les Mongols, une Terre promise. Par leurs efforts, elle deviendra un Paradis sur terre.

La défaite des aborigènes, les Stroukarambes, rappelle la victoire des tribus juives sur celles de Canaan. En même temps, elle prophétise sinon la victoire, du moins la supériorité du déisme utopique australien sur les religions fanatiques d'Europe.

Veiras n'assume cependant pas ouvertement la critique utopienne de la civilisation chrétienne. La pression de la censure et de l'autocensure l'oblige à s'alléger de la charge hérétique en l'attribuant exclusivement à ses personnages, les Sévarambes. Il le fait par l'entremise de son (faux) porte-parole, le capitaine Siden, protagoniste de l'expédition australe et narrateur de l'histoire des Sévarambes. Siden assume la charge de contester ce que dit son hôte. Quand il présente la doctrine adoptianiste des Australiens, il ne manque pas de commenter : « Ainsi, ces pauvres hérétiques tâchent d'appuyer leur erreur par ces vains raisonnements et nient le très sacré mystère de la Trinité ou le conçoivent d'une manière fort différente de celle des bons catholiques » (Veiras [1994], p. 201). Quand quelques-uns de ses compagnons se convertissent à la religion des Sévarambes, il fait tous ses « efforts pour les ramener et pour empêcher le mauvais effet que leur exemple pourrait produire » sur les autres (Veiras [1994], p. 245). Le « désaveu » du narrateur complique et rend plus ambiguë la position de l'auteur face à sa proposition utopique.

Plus que les libertins du XVII<sup>e</sup> siècle, les « esprits forts » du XVIII<sup>e</sup> ne se cachent plus derrière des aventures merveilleuses et des fables moralisatrices — ils n'hésitent pas à exposer et à assumer ouvertement leurs conceptions hétérodoxes. Ainsi, Claude Gilbert conclut l'*Histoire de Calejava* (1700) en ajoutant au manuscrit le « Projet d'une Religion Raisonnable ». Il s'agit d'une véritable profession de foi libertine, qui substitue aux dix commandements de Moïse douze principes de théologie et de morale déiste : « I. Qu'il y a un Dieu, Cause universelle ; II. Qu'il est tout puissant et indépendant ; III. Qu'il a créé le Monde, et les Créatures ; IV. Qu'il le conserve et le gouverne par sa Providence, suivant les loix naturelles, qu'il a établies ; V. Qu'il l'a fait Esprit et Corps ; VI. L'Esprit, pour vivre éternellement ; le Corps, pour mourir dans le temps ; VII. Qu'il l'aime, et qu'il veut que ses créatures s'aiment ; VIII. Qu'il n'a aucun besoin de ses Créatures ; IX. Que ses Créatures ne peuvent subsister sans lui, ni les unes sans les autres ; X. Qu'il les a obligées par les Loix naturelles à des devoirs mutuels ; toutes fondées sur la charité, ou l'amour mutuel, que nous nous devons pour la conservation de son ouvrage ; XI. Qu'il a établi une récompense pour les Bons, et une punition pour les Méchants ; XII. Que la Foi Divine n'est que la Conscience, la Raison, qui rend nos actions justes, en la pratiquant, et en la suivant » (Marc Serge Rivière, *Introduction* à Gilbert [1990], pp. VIII-IX).

Cette « religion raisonnée » est attribuée par Claude Gilbert aux Avaïtes, un sage peuple du Nord héritant du prestige des anciens Hyperboréens. *L'Histoire de Calejava* est composée d'une suite de dialogues qui mettent en scène un « tournoi » théologique entre trois Français, Cristofile (reformé), Eudoxe (mi-reformée, mi-catholique) et Alatre (libre penseur), le Turc Samieski et un Avaïte. Dans les controverses sont énoncés une série d'arguments contre la religion révélée, l'autorité et les opinions reçues (« Pour déterrer celles-ci, il ne faut avoir recours qu'à la raison »), contre les miracles et les prophètes (« Les miracles sont des preuves si équivoques, que ceux qui seront honorés du don d'en faire au nom du Seigneur ne laisseront pas fort souvent d'être réprouvés »), contre les prières et les rituels, contre le péché originel (« Rien n'est plus mal fondé dans l'Écriture que le Roman qu'on fait de l'état du premier homme s'il n'eût pas mangé du fruit défendu »), mais aussi contre le panthéisme et l'athéisme (« Cet effroyable aveuglement vient de ce qu'on renferme dans l'idée de Dieu des attributs qui sont contraires à cette idée ») (Gilbert [1990], pp. 10, 18, 59, 20).

*Grosso modo*, les débats servent de maïeutique pour amener les visiteurs de Calejava à la conclusion que la seule religion acceptable est celle étayée par la raison. Le parallèle des « maximes des Avaïtes » avec les mœurs des autres pays aboutit à la conclusion que « l'amour propre éclairé par la raison peut produire de très bons effets » (Gilbert [1990], p. 82). Emprunté au traité *De la charité et de l'amour-propre* de Nicole (1675), le concept d'amour propre annonce une nouvelle conception de l'homme, par-delà la critique chrétienne de l'égoïsme, de l'orgueil, de l'avarice et des autres péchés engendrés par l'amour de soi. Bref, il déculpabilise l'intérêt pour le bien-être individuel. La religion déiste et raisonnée des Avaïtes, avec sa morale tournée vers l'homme, complète et, à la limite, devrait supplanter le christianisme.

Simon Tyssot de Patot est encore plus intransigeant avec l'institution religieuse. Ses écrits contiennent, comme le constate Aubrey Rosenberg, « les discussions anti-chrétiennes peut-être les plus violentes du siècle » (Aubrey Rosenberg, *Introduction* à Tyssot de Patot [1993], p. 22). Le protagoniste des *Voyages et aventures de Jaques Massé* (1710) déclare hardiment que pour lui la Bible est « un Roman assez mal concerté, que je traitois pourtant de Fables Sacrées. La Genèse, selon moi, étoit une pure fiction : la Loi des Juifs & leurs cérémonies, un badinage & de vaines puérilité ; les Prophéties, un abîme d'obscuritez, & un galimatias ridicule ; & l'Évangile une fraude pieuse, inventée pour bercer des femmelettes & des Esprits du commun ». En invoquant les lois naturelles et l'expérience empirique, le narrateur balaie d'un coup les « superstitions » témoignant de l'intervention du sacré dans l'histoire. Les récits pieux sur les patriarches et « tant

d'autres Miracles faits pour les Juifs, l'Asne qu'on fait parler pour dire si peu de choses & mille autres difficultez de cette nature, embarassoient prodigieusement ma raison » (Tyssot de Patot [1993], p. 44).

Jaques Massé trahit prestement les maîtres à penser qui nourrissent son scepticisme. D'un côté, c'est Descartes, dont il cite la théorie sur la glande pinéale et le flux d'esprits animaux comme intermédiaire entre la *res extensa* et la *res cogitans*, entre le corps et l'esprit. De l'autre, c'est Hobbes et les empiristes anglais, selon lesquels il n'y a rien dans l'esprit qui ne soit pas venu des sens (parlant « de conception & d'imagination, il est sûr que l'attouchement est la seule cause de l'une & de l'autre » — Tyssot de Patot [1993], p. 48). Les amis du jeune esprit fort ne manquent pas de le traiter de libertin, d'opiniâtre et d'incrédule, et même d'écervelé et de scélérat. Jaques Massé se défend faisant l'éloge de la pensée indépendante et se présentant comme « un homme qui nage contre le courant d'un torrent » (Tyssot de Patot [1993], p. 45).

Cependant, il se sort du conflit entre la foi, la raison et l'empirie par un compromis plutôt facile : il se convertit au protestantisme. Calvin, argumente-t-il, lui offre la solution en proposant de lire les anecdotes de la Bible comme des paraboles spirituelles et messianiques. Ainsi, la création du monde, la chute de l'homme, le passage de la Mer Rouge « & tout ce qui s'est passé de plus remarquable dans la République d'Israël, n'étoient que des Tipes, des allégories, des emblèmes, des figures & des ombres, qui n'avoient du rapport qu'avec la nouvelle Alliance » (Tyssot de Patot [1993], p. 50). Le puissant instrument de l'allégorisme, construit par les philosophes anciens d'Alexandrie, de Philon à Origène, permet une herméneutique presque sans limite, capable d'expliquer toute incohérence et inintelligibilité de l'Ancien Testament.

Le scepticisme religieux de Jaques Massé s'arrête à ce seuil, tandis que celui de son auteur va beaucoup plus loin. Le personnage narrateur est posé comme un dénégateur qui protège son auteur des accusations d'hérésie et lui permet en même temps de pousser à fond sa conception. Dans la « Lettre de l'éditeur », Tyssot de Patot recourt au stratagème déjà classique du manuscrit reçu ou trouvé, pour passer la responsabilité de ses opinions à l'auteur fictif. Mieux, il essaie, si possible, de décharger le narrateur aussi, et de repousser les accusations d'hérésie encore plus loin, sur les peuples et les interlocuteurs observés par celui-ci. De l'avis de l'« éditeur » (Tyssot de Patot), l'« auteur » (Jaques Massé) « a toujours tenu ferme pour sa religion » et « a fait voir presque toujours la foiblesse ou la fausseté » des arguments « un peu forts » des Infidèles et des Libertins (Tyssot de Patot [1993], p. 33).

Caché derrière le double paravent télescopique de l'éditeur et du narrateur, Tyssot de Patot crée une utopie pleinement déiste. Dans les mers

du sud, après un naufrage à quelque douze cents lieues de Sainte-Hélène, Jaques Massé est reçu par un peuple pratiquant une religion raisonnée. Les dialogues entre le protagoniste, faisant profession de fidéisme, et ses hôtes, sont autant de critiques, à partir de positions rationalistes et libertines, des « fables » chrétiennes. L'attaque la plus dure, dirigée contre le Nouveau Testament, est véhiculée par une histoire locale sur un moine mendiant venu dans le pays plusieurs siècles auparavant. Prêchant les Évangiles et les faits du Christ, une « doctrine qui flâte beaucoup » les esprits simples, il avait fini par être condamné comme « le dernier des Blasphémateurs » et semeur de désordres.

Le credo déiste du sage vieillard aborigène dit : « Je crois une Substance incréée, un Esprit universel, souverainement Sage, & parfaitement bon & juste, un Être indépendant & immuable, qui a fait le Ciel & la Terre, & toutes les choses qui y sont, qui les entretient, qui les gouverne, qui les anime ; mais d'une manière si cachée & si peu proportionnée à mon néant, que je n'en ai qu'une idée très imparfaite » (Tyssot de Patot [1993], p. 88). À partir de cette position, le sage détruit un à un les dogmes sur la communication entre un Dieu transcendant et infini et ses infimes créatures, sur l'efficacité de la prière, sur l'autorité de la tradition, sur la possibilité de résurrection, sur la chronologie biblique du monde, sur la condition des morts, sur les commandements divins, etc. (Tyssot de Patot [1993], pp. 87, 88, 91, 94, 96, 98).

L'« éducation » hétérodoxe de Jaques Massé ne s'interrompt pas avec son départ du royaume austral. Arrivé finalement à Goa, il est saisi par l'Inquisition, « le plus terrible & le plus injuste Tribunal qu'il ait au monde ». L'accusation d'avoir parlé avec mépris des images des Saints, du Crucifix, du Purgatoire et de l'infaillibilité du Saint-Office lui vaut une condamnation à vie aux galères. C'est pendant le stage aux cachots qu'il rencontre un Chinois très libéral, qui se confesse « universaliste, ou de la Religion des honnêtes gens ». Ce personnage est le porteur d'une critique raisonnée aiguë de l'obscurantisme chrétien, « culte [...] enveloppé des ténèbres les plus épaisses du Paganisme » (Tyssot de Patot [1993], pp. 170-172).

Ravi par des pirates et vendu comme esclave en pays musulman, Jaques Massé fait la connaissance d'un « proposant Gascon », « le plus hardi Athée, ou Deïste, que j'aye vû de mes yeux ». Tournant tout en ridicule, le Français raille les vérités de la religion chrétienne, l'existence de Dieu, la création du monde, l'immortalité de l'âme, la chute de l'homme, la rédemption par Jésus-Christ, la révélation de l'Écriture, etc. Ses discours finissent par ébranler le fidéisme (de toute façon très problématique) du protagoniste. Exploitant cyniquement le principe que toutes les religions sont égales et se convertissant sans scrupules au mahomé-

tisme, le Gascon plaide, au fond, pour l'idée, chère aux illuministes, du relativisme et de la tolérance religieuse.

Une autre utopie dont les habitants pratiquent le déisme et la religion raisonnée est Mezzoranie, royaume de l'Afrique centrale, décrit par Simon Berrington dans les *Mémoires de Gaudentio di Lucca* (1737). Le narrateur présente les Mezzoraniens de manière apparemment hostile, chose explicable étant donné qu'il fait son exposé dans les caves de l'Inquisition. Ainsi, il les présente comme des païens adorateurs du Soleil : « Ils détestent, comme les Chinois, le nom d'Idolâtres, quoiqu'ils le soient de fait, puisqu'ils adorent le Soleil matériel, & qu'ils rendent à leurs Ancêtres décédés un culte extrêmement superstitieux, dont je vous ai déjà parlé. Ils reconnoissent cependant un seul Dieu suprême, Créateur de toutes choses, qu'ils nomment El, ou le Très-haut. La raison naturelle, disent-ils, leur apprend l'existence de cet être » (Berrington [1737], II, p. 54).

La vision déiste s'accompagne d'une anthropologie spiritiste, dans laquelle l'idée pythagoricienne de métempsychose se combine aux pratiques locales de magie et de possession : « Ils disent que les corps humains sont des demeures si délicates, que les âmes des bêtes les envient aux hommes, & tachent continuellement de s'y insinuer & de s'y établir ; [...] & que si nous ne nous tenons sur nos gardes, ces âmes animales s'emparent de l'âme raisonnable, de façon qu'elle ne peut plus gouverner le corps, ni agir » (Berrington [1737], II, pp. 66-68). Transmigration inverse, dans laquelle les esprits des animaux entrent dans les corps des hommes et non les hommes dans les animaux, la palingénésie imaginée par Simon Berrington paraît pressentir le grand retour romantique de l'inconscient, le réveil de la bête en nous, l'avènement du monstre intérieur.

Avec l'avancée du XVIII<sup>e</sup> siècle, les attaques contre la religion révélée et l'institution ecclésiastique se radicalisent, débouchant sur l'athéisme et la révolution. *L'Histoire des Ajaiiens* de Fontenelle, composée vers 1682, mais publiée en 1768, imagine ce qu'Alain Niderst (1972) appelle « une colonie d'esprit forts ». La philosophie des Ajaiiens, matérialiste et athée, soutient que « la matière est éternelle, notre âme matérielle est vouée à la mort » et que Dieu est « inventé à plaisir ». En partant du principe que « Ce qui n'est point, ne peut donner de l'existence à quelque chose », « les Ajaiiens se croient donc fondés en raison, pour mettre la Nature à la place de ce que nous nommons Dieu ». La contestation de la théologie chrétienne met à nu « l'inutilité des cérémonies d'un culte public » (Fontenelle [1982], pp. 43, 47). Les Ajaiiens admirés par Fontenelle n'ont ni temples, ni autels, ni prêtres, ni messes, ni sacrements. Ou, pour ne prendre qu'un autre exemple, la *Basiliade* d'Étienne-Gabriel Morelly (1753) serait, selon Nicolas Wagner, un « pamphlet anti-religieux », où les ministres du culte chrétien sont décrits d'une manière burlesque et le « pouvoir religieux est fustigé dans la relation de l'Isle stérile » (Wagner [1978], p. 175).

De concert avec la critique de la religion, les attaques satiriques des « philosophes utopistes » se déplacent progressivement de l'institution de la religion à celle de l'État. Charles Rihs affirme qu'« il y a, en effet, au XVIII<sup>e</sup> siècle un système de pensée groupé autour de la négation de l'État relevant d'une autorité divine, transcendante, immuable et sacrée. Inséparable de l'Église historique, catholique et romane, incarnant à la fois une fonction politique et religieuse, l'État de droit divin a été la cible des critiques de tous les philosophes : le combat fut mené à la fois contre le pouvoir politique et contre le pouvoir religieux. On voulut briser la domination du clergé, écraser l'*infâme*, vaincre le despotisme des rois et des nobles » (Rihs [1970], p. 10).

Plus généralement encore, les utopies illuministes procèdent à ce que Thomas Molnar appelle la « dénonciation du principe politique ». « Le principe utopiste sur lequel repose ce postulat est que lorsque l'humanité a atteint une perfection ou une maturité suffisante, elle élimine le gouvernement comme un mal. Nous avons besoin d'un gouvernement, dit l'utopiste, aussi longtemps que nous sommes imparfaits. L'homme parfait est son propre gouvernement, dit l'humaniste, quand il réalise qu'il est la mesure de toutes choses et, par conséquent, responsable de sa propre conduite » (Molnar [1973], p. 180). Cette attaque contre le pouvoir politique mènera finalement à la Révolution, car, comme l'observe avec sagacité François Chirpaz, ce que l'utopiste n'arrive pas à comprendre (et constitue son point aveugle), c'est que, sous ses desseins altruistes, se cache la « volonté de puissance », le désir de contrôle total (Chirpaz [1999], p. 151).

La critique du pouvoir, du gouvernement et de l'État s'amplifiait inévitablement dans une attaque contre la structure de la société, les classes sociales et la propriété privée. Un important précepte utopique, dérivant du dessein d'établir une communauté adamite, était la communion des biens. Miriam Eliav-Feldon a identifié deux types d'utopies : les utopies du bien-être (*welfare*) collectif (les *commonwealths* anglaises) et les utopies de la frugalité, construites sur le modèle du monachisme et de l'ascétisme chrétien. Les utopistes de la deuxième classe pensent que l'individualisme, l'égoïsme, la cupidité et l'avarice sont des conséquences du péché originel. Par la suite, afin de récupérer l'innocence originelle, il faut abolir la propriété privée et la structure sociale bâtie sur ses bases.

La disparition des possessions individuelles et de l'argent entraînerait l'annulation de l'exploitation et des inégalités. C'est par ce souci de redressement moral que même les sociétés utopiques les plus prospères font tout le possible pour éviter la bien aisance et le luxe. Comme le montre encore Miriam Eliav-Feldon, en Utopie la richesse est interdite, l'argent en surplus ne peut être utilisé que pour faire des dons ou pour le bien de

la collectivité, les constructions opulentes, les ornements abondants et les habits fastueux sont vus d'un mauvais œil, les dots et les funérailles extravagants sont abhorrés. « L'inclination religieuse vers l'ascétisme et la nécessité économique se combinent, formant un idéal rigoureusement austère » (Eliav-Feldon [1982], pp. 98, 101).

Selon Thomas Molnar, les théoriciens de l'utopie ont été en général hostiles à l'argent, au libre échange, au commerce, à l'épargne, à l'investissement non seulement parce que ces activités sont une manifestation de l'avarice et des tares connexes, mais aussi parce qu'elles sont une expression de la liberté de l'individu et empêchent la planification et le contrôle collectif (Eliav-Feldon [1982], p. 159). Les utopistes ont vu dans l'abolition des biens privés une pré-condition de la compassion, l'entraide et l'harmonie sociale. Tyssot de Patot, pour ne prendre qu'un exemple, imagine dans *La vie, les aventures et le voyage de Groenland du Révérend Père Cordelier Pierre de Mésange* (1720) un royaume utopique souterrain où « tout ce qu'ils font leur est commun, ou ils le partagent par égales portions : le Roi en a la dixième partie, qui lui sert pour l'entretien de sa famille, de ses gardes, & des pauvres gens, qui par maladie, vieillesse, ou autres infirmités, ne sont point en état de travailler & n'ont aucuns parens qui ayent soin d'eux » (Tyssot de Patot [1979], I, pp. 58-59).

Plus radicaux, les « philosophes utopistes » Jean Meslier, Étienne-Gabriel Morelly et Dom Deschamps soutiennent que « la propriété est l'obstacle premier à l'organisation d'une société heureuse » (Rihs [1970], p. 15). L'appropriation des biens est, selon Meslier, la cause de la constitution des classes sociales, de l'inégalité, de l'exploitation et de l'injustice sociale. Morelly dit du peuple heureux de la *Basiliade* (1753) : « l'impitoyable Propriété, mère de tous les crimes qui inondent le reste du Monde, leur étoit inconnue ; ils regardoient la Terre comme une nourrisse commune qui présente indistinctement le sein à celui de ses enfans qui se sent pressé de la faim : tous se croyoient obligés de contribuer à la rendre fertile ; mais personne ne disoit, voici mon champ, mon bœuf, ma demeure » (Morelly [1753], I, pp. 5-6). Repris dans le *Code de la Nature* sous la forme plus austère d'un traité politique et social, le thème de l'égalitarisme deviendra, au XIX<sup>e</sup> siècle, un des piliers du « socialisme utopique », puis du « socialisme scientifique », du marxisme et du communisme.

La communauté des biens et l'austérité étaient souvent rapportées au modèle christique. Étienne Cabet, socialiste utopique du XIX<sup>e</sup> siècle, continuait d'étayer son *Voyage en Icarie* sur l'idée que « la communauté c'est le christianisme ». À l'appui de son manifeste politique romancé, il n'hésitait pas à invoquer l'exemple du Fils : « Jésus-Christ lui-même a non seulement proclamé, prêché, commandé la communauté comme conséquence de la fraternité, mais il l'a pratiquée avec ses Apôtres. Ses

Apôtres l'ont ensuite pratiquée entre eux, puis avec les premiers Chrétiens ». Cabet dresse une liste bien nourrie de groupes communistes, en partant des chrétiens de Byzance, de Pelage et ses partisans, des Vaudois et des Albigeois jusqu'à la multitude de sectes protestantes d'Allemagne, d'Angleterre et du Nouveau Monde, pour conclure : « Les communautés actuelles sont donc les Disciples, les Imitateurs et les Continueurs de Jésus-Christ » (Cabet [1979], p. 567).

Or, ni l'Église ni les monarchies de droit divin n'étaient disposées à accueillir ce rappel moralisant de l'exemple du Fils pour défaire le système social. Si la papauté avait préféré endiguer et contrôler le phénomène en créant des ordres comme celui des Franciscains, les protestants, autant les réformés de Luther que les puritains d'Angleterre, s'étaient opposés de manière sanglante aux mouvements communistes, aux révoltes populaires et aux sectes radicales comme les Levellers. L'appel des utopistes à une *vita activa politica*, subordonnant l'amélioration morale à des réformes politiques, n'était certainement pas pour plaire à l'État, pas plus que les programmes chiliastiques.

Somme toute, la reconstruction utopique du Paradis a engendré des problèmes doctrinaux qui rejettent ces projets imaginaires en dehors des dogmes de l'Église, dans l'hérésie, et en dehors des institutions établies de l'époque. Conseillant la révolution et l'anarchie, les utopies offraient un espace d'expérimentation théorique pour maints modèles religieux, politiques, sociaux et économiques plus ou moins hétérodoxes, ce qui ne pouvait qu'inquiéter l'État et provoquer des réactions dures.

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## Transmodern *versus* Postmodern

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Sciences are reluctant to grasp fashionable labels and quickly changing clichés, unless they have been circulated for a considerable period of time, so that they can be recognized as a serious phenomenon. The term *postmodern* appeared in the 1960s in the course of debates on the fate of the Enlightenment. Since then, the “postmodern thought” has sent ripples through all terrains of inquiry.

Many people today sense that the modern period is over. Certain historians date this era as beginning with the French Revolution in 1789, and ending with the fall of the Berlin Wall in 1989. Others speak about a period between Diderot’s *Encyclopedia* and the theory of fuzzy sets.

The major driving tenet behind the life of the modern era was the belief in a two-valued logic, where between true and false there is nothing, no nuance, as a direct rejection of the non-Aristotelian logic’s claims to relevance, banned as a superstition of the religious premodern. The failure of the modern project, according to the postmodern views, was due to its erroneous assumption that there is an objective truth.

It is not simply that postmodernism does not believe in “truth” so much that it understands truth, and meaning, as constructed. The fragmentation of truth, the ascendancy of subjective evaluations, the triumph of approximate reasoning — all the tendencies that we loosely label as “postmodern” — are commonly assumed to have burst full-blown from the brains of Jean Baudrillard and Jean-François Lyotard. Most attempts at tracing the origins of the postmodern sensibility stop at the gates of Jacques Derrida. The postmodern era, we are supposed to assume, was born in the Paris departments of literature, sociology, and cultural studies.

My view is that science has substantiated relativity. Theories in quantum physics were the first to contribute to the belief that truth claims are much more relative than the Enlightenment thinkers had believed.

Whereas modern science had previously dealt with matter and energy, postmodern science focuses on form and patterns. First, the theory of categories generalized the set theory, which forms the basis of modern maths. Then, from the generalization of the degree of membership in a set, came the fuzzy-set theory. In a postmodern way, these generalizations turned everything upside-down.

Aristotle cited the laws of contradiction and of the excluded middle as examples of axioms. In the epochal *Principia Mathematica* (1910-1913) of A.N. Whitehead and Bertrand Russell, this law occurs as a theorem rather than as an axiom.

The law of the excluded middle has been rejected by L.E.J. Brouwer, the Dutch mathematical intuitionist, and his school, who do not admit their use in mathematical proofs in which all members of an infinite class are involved.

The term *fuzzy logic* emerged in the development of the theory of fuzzy sets by Lotfi Zadeh (1965). A fuzzy subset  $A$  of a (crisp) set  $X$  is characterized by assigning to each element  $x$  of  $X$  the *degree of membership* of  $x$  in  $A$  (e.g.,  $X$  is a group of people,  $A$  is the fuzzy set of *old* people in  $X$ ). Now, if  $X$  is a set of propositions, then its elements may be assigned their *degree of truth*, which may be “absolutely true”, “absolutely false”, or some *intermediate* truth degree: a proposition may be more true than another proposition. This is obvious in the case of vague (imprecise) propositions like “This person is old” (beautiful, rich etc.). In the analogy to various definitions of operations on fuzzy sets (intersection, union, complement etc.) one may ask how propositions can be combined by *connectives* (conjunction, disjunction, negation etc.) and whether the degree of truth of a composed proposition is determined by the degrees of truth of its components, *i.e.*, whether the connectives have their corresponding *truth functions* (like the truth tables of classical logic). By saying *yes* (which is the mainstream of fuzzy logic), one accepts the truth-functional approach; this makes fuzzy logic distinctly *different from the probability theory*, since the latter is not truth-functional (the probability of conjunction of two propositions is *not determined* by the probabilities of those propositions).

There is a direct conflict here with a tenet of the traditional scientific dogma, namely the belief that the scientific description and explanations should, and indeed can, approximate the structure of an objective reality, a reality supposed to exist as such, irrespective of any observer. The Fuzzy Sets Theory, given its fundamental notions of a degree of membership, or degree of truth, encourages an alternative view. According to this view, reality is an interactive conception, because the observer and the observed are a mutually dependent couple. Objectivity in the traditional sense, as Heinz von Foerster has remarked, is the delusion that there is no delusion.

Invoking objectivity is abrogating responsibility; hence, its popularity. Observer-observed problems have surfaced in the social sciences with the emergence of the notion of *understanding*... The "hermeneutic" approach has been gaining ground. Here, again, the aim is to reconstruct "meaning" in terms of the conceptual climate at the time and place of the author.

The most powerful and encouraging corroboration of the disengagement from the dogma of objectivity, however, comes from the fuzzy-set theory. A fuzzy subset of any universe  $U$  is a collection of objects from  $U$  (the set part) such that with each object is associated a subjective evaluation, a degree of membership (the fuzzy part), which is always a number between zero and one, measuring the extent to which an element is in a fuzzy set. The set of numbers between zero and one is an infinite set. We use these numbers to assess a membership at its true worth. This assessment is a belief. We have moved from fact-based criteria for truth to feeling-based criteria. Like beauty, truth is in the eye of the beholder. In a recent book, entitled *Fuzzy Sets*, I have tried to show that the origins of the postmodern era are significantly closer to fuzzy maths than its cheer-leaders or its critics imagine, that modern science is based on, and uses procedures that are only valid in, restricted domains, that genuine scientific knowledge requires modes of reasoning that consider the infinite.

The classical set theory appeared in the 19<sup>th</sup> century with Bolzano, who considered existing sets. For a set to exist, all its elements must exist individually. So an infinite set is infinite in the actual sense. The first aim of Bolzano's set theory is to prove the existence of infinite sets. In the real world, it is impossible to exhibit an infinite set. To produce such a set, we have to abandon the real world. Bolzano therefore employs theological considerations. In a charming and ingenious way, he proves the existence of an infinite set in the "Mind of God". However, actual infinity, or more precisely what is meant by actual infinity, is not a phenomenon. Infinite sets are not something we would be able to perceive. Bolzano who knew rather well that only God could observe infinite sets. Mathematicians did not reconcile themselves to Bolzano's intuition and, since they could find no other, tried to forget it. However, the premodern theological position could not be entirely removed from the mathematics of the infinite sets.

In 1931, the Romanian philosopher Lucian Blaga published a book about premodern logic. *The Dogmatic Eon* is a piece of brilliant deduction and must be placed among the astute intellectual contributions to the study of logic. More than half of this formidable essay is devoted to an elaborate analysis of the dogmas developed during the first millennium. The book starts with a philosophical theory which sees all creation as a necessary and spontaneous outflow of contingent beings of descending perfection from an infinite, undiminished, unchanged primary substance.

Hints of this doctrine occur in the first century in the writings of Philo Judaeus of Alexandria. The philosophers of classical Greece, particularly Heraclitus, thought that the primary substance, emanating secondary states of existence, *does become less*. The Stoics preached that the whole primary substance became the World. But only Philo was bold enough to state that the primary substance emanates *without becoming less*. Therefore, the intellect accepted an antinomy as a definition. This way of thinking made theoretical insights like Cantor's theory of infinite sets possible. A part of an infinite set has the same number of elements as the entire infinite set. Cantor's theory was pounced on by keen minds that detected the indubitable proof of the existence of God and the self-consistency of the three-in-one, one-in-three, co-equal and co-eternal Trinity.

### **The Logic of the Infinite Sets Is Non-Aristotelian.**

**I**n a postmodern world, the infinite is again intellectually relevant. With the demise of the absoluteness of the law of the excluded middle, the (supernatural) infinite is once again open to consideration. The theory of fuzzy sets can take us more quickly and painlessly into the heart of the postmodern outlook. This theory can persuade anybody that Russell was wrong eighty years ago, while writing about mysticism and logic, when he stated that mysticism as a way of thinking is a source of error (just because the mystic does not accept the two-valued logic and its handmaiden, the law of the excluded middle, that he called Beelzebub).

My first recollection of Beelzebub is quite clear. I can see her surrounded by teachers in primary school, sharpening the notion of negation in terms of an ideal called the excluded middle. Between heaven and earth, she used to say there is nothing. Or, that heaven and earth have nothing in common. In the logic of the modern school, something is either heaven, or earth, but not both. The sharpness, the clarity, the severity of this distinction made it a modern law — the law of the excluded middle. Either there, or not there means separated by crisp boundaries. The law of the excluded middle has dominated Modern thinking. The postmodern logic is different. It recognizes that in reality there are things that are a little bit heaven and a little bit earth. In other words, it perceives that heaven and earth can overlap. Terms that overlap are said to be fuzzy. Dealing with them, we have to avoid the Aristotelian two-valued logic.

Almost all concepts are fuzzy, without precise borders. A half-apple is still, to a certain degree, an apple. Any concept can be seen to evaluate the finite by using the order of the infinite (a string of numbers between zero and one). The postmodern logic of fuzzy concepts looks premodern.

My interest in the fuzzy set theory began in 1965, when I entered a PhD program in computer science, convinced that the exact description of any real physical situation is virtually impossible. This is a fact we have to accept and adjust to. The inexactness of the description is not a liability. On the contrary, it is a blessing. The fuzziness of the natural language is a gift, because with only ten thousand words we can describe the whole world. In other words, fuzziness makes for greater efficiency. I published my thesis in 1970. In 1972, I was invited at the Atlas Computer Laboratory in England, where I attended the Congress of Cybernetics organized by Dr. J. Rose. In 1973, I started a seminar devoted to Fuzzy Sets and, in 1974, I published the first monograph of the field, with Dan Ralescu, now at the University of Cincinnati. Its English version was published simultaneously in Switzerland and New York. Japanese and Chinese translations followed easily, in 1978 and 1982. As I remember those days, I realize how fuzzy beginnings are. One stumbles through unknown regions, is led astray by analogies, is overwhelmed by possibilities, and knows afterwards what one should have known before. Today, the idea of a fuzzy set is central to postmodern computer science.

Unlike the premoderns before them, the moderns rejected, by and large, the relation with the infinite, because they hated religion. However, as it turned out, the modern era did not produce the progress its prophets had predicted. After two World Wars, Nazism and Communism, people began to question the belief that the pursue of a two-valued logic — accepting only the true and the false, nothing in between, no (infinite) string of nuances — would make for a better world. In my books, when I asked myself who drives people to destroy one another, who furnishes so bright a portrait of the enemy, I pointed to the law of the excluded middle (to Beelzebub, the accuser, the adversary, a loanword from the Akadian term for “master of speech”, the name of the pagan god of Ekron, probably connected with the Ugaritic word *zbl*, meaning a princess, later known as “the queen of this world”).

If the conspiracy of the French Revolution gave birth to the moderns, then the Cybernetic Conspiracy, described in one of my books, in 1988, gave birth to the postmoderns who try to avoid modern nightmares.

The emergence of the fuzzy paradigm was not simply a colorful instance of postmodernism. It was also a chapter in the intellectual history of Eastern Europe. From this point of view, the fuzzy set was an especially important figure. Playing with modern science, shamelessly spreading contradictory rumors, constantly prodding the students to test and retest the evidence of their feelings (not only the evidence of their senses), the fuzzy-set theory created a vernacular philosophy for a society in the make. By promoting the idea of fuzzy numbers, the fuzzy-set theory implicitly

incited speculation about the authenticity of the law of the excluded middle, when dealing with control — the darling of every totalitarian society —, and encouraged the acceptance of uncertainty as a condition of everyday life. By bringing cybernetics to the streets, they unwittingly helped hasten the shift from the Enlightenment ideal of the two-valued logic to a postmodern preoccupation with the many degrees of truth.

Cybernetics is defined by control. If physics is the science of understanding the physical environment, then control should be viewed as the science of modifying that environment, in a physical, biological, or even social sense. The use of universal data processors, computers, gives cybernetics a new method of scientific investigation: the linguistic modeling. Before this method appeared, scientists actually had only two methods of study: experimental and mathematical. In the former, experiments were performed with the system itself. When the controlled system was an economy, the result was an utter disaster. In the latter, it was necessary to be able to solve the equations describing the systems. This was impossible, because no complex systems can be described easily with differential equations. For a large economy, these equations do not exist. Linguistic modeling occupies an intermediate position between these two methods. One of the most typical forms of linguistic model is expressed by a set of rules such as “if productivity is low, then poverty is high”. *High* and *low* are words and their (subjective) meaning can be described by fuzzy sets.

I date the birth of the serious postmodern culture to that special year, 1965, when Lotfi Zadeh published his seminal paper on Fuzzy Sets. But the genealogy of the postmoderns can be traced to many different researchers in other places, where nothing was as it seemed, and no one was sure that there is a direct experience of reality without interpretation, because all interpretation is corrupted by the interpreters' prejudices.

The strength of this approach lies in the fact that it uses, or manipulates, certain imprecise facts or what may not be a fact but an impression. Everything in this new approach is a matter of degree. Key-words are not absolutes, like *black* or *white*, or *hot* or *cold*, but *gray* or *cool*, and the like. This is what Nicholas Georgescu Roegen, at the Vanderbilt University in Nashville, preached all his life. In a much-celebrated book, he focused on arithmomorphic schematization. Arithmomorphic concepts do not overlap. Every one of them is as discretely distinct as a single number in relation to the infinity of all others. The concepts used in human judgments, like “good” and “true” have no arithmomorphic boundaries. Instead, they are surrounded by a penumbra that they share with their opposites. At a particular historical moment, a nation may be both a democracy and not a democracy, just as there is an age when a man is both young and old. To the category of concepts we cannot apply the fundamental law of

the two-valued logic, the principle of the excluded middle, which says that  $T$  cannot be both  $D$  and  $not-D$ . On the contrary, we must accept that, in certain cases,  $T$  is both  $D$  and  $not-D$ .

When I met him in Nashville, in 1982, and we discussed all these things, we did not use the word *postmodern*, because we did not know it. Somebody else invented it to show that all great ideas that have shaped our society, like Religion, Reason, Science, Tradition, History, Morality, Marxism, do not stand up to a philosophical scrutiny. There is no such thing as scientific Truth. Anything that claims to provide us with absolute truth is a sham. It must be abandoned.

### In the Name of the “Premodern Postmodern”

To appreciate what is at issue here, one must distinguish between postmodernism and postmodern. Postmodernism is what comes after modernity; it is *post* in terms of time; it is a natural conclusion of modernity. This is why it is sometimes described as “the logic of late capitalism”. It represents a linear trajectory that starts with the Creed of Nicaea, continues with modernity and ends with post-modernity, or postmodernism. It is not surprising, then, that postmodernism and tradition are like two fuming bulls in a ring, inimically antagonistic to each other

Moreover, postmodernism suggests, there is no ultimate Reality. We see what we want to see, what our position in time and place allows us to see, what our cultural and historic perceptions focus on. Instead of reality, what we have is an ocean of images; a world where all distinction between image and material reality has been lost. We float on an endless sea of images and stories that shape our perception and our individual “reality”.

By contrast, *transmodernism* goes beyond modernity; it transcends modernity in that it takes us *trans*- — through — modernity, into another state of being. So, unlike postmodernism, transmodernism is not a linear projection. We can best understand it with the aid of the chaos theory. In all complex systems — societies, civilisations, eco-systems etc. —, many independent variables interact with each other in great many ways. The chaos theory teaches that complex systems have the ability to create order out of chaos. This happens at a balancing point, called the “edge of chaos”. At the edge of chaos, the system is in suspended animation, sort of, between stability and total dissolution into chaos. At this point, almost any factor can push the system into one or another direction. However, complex systems at the edge of chaos have the ability to spontaneously self-organize themselves into a higher order; in other words, the system

“evolves” spontaneously into a new mode of existence. Postmodernism is the transfer of modernity from the edge of chaos into a new order of society. As such, postmodernism and tradition are not two opposing worldviews, but a new synthesis of both. Traditional societies use their ability to change and become postmodern while accepting the premodern values! Both sides of the equation are important here: change has to be made and accommodated; but the fundamental tenets of tradition, the source of its identity and sacredness, remain the same. So we may define a postmodern future as a synthesis between life-enhancing tradition — that is amenable to change and transition — and a new form of modernity that respects the values and lifestyles of traditional cultures. It is in this sense that the “premodern postmodern” is “transmodern”.

The premodern postmodern is a historical constant that returns and is encountered in chronologically distant periods. The premodern style can be reborn and translate the same inspiration in new forms. The radical nature of the modern lay in its rupture with the tradition and the embracing of a bivalent logic understood as clarity.

Recently, Theodor Codreanu, the outstanding Romanian professor from Huși, recommended the term *transmodern* as a better description for the “premodern postmodern”, an apparently paradoxical term at first sight. No matter which term we use, it represents an appeal, a request to the Supreme Court of Science, to change the decision of those who mocked religion, and the antimodernism of the premodern postmodern cultures, from Zionism to *Opus Dei* and The Legion of Christ.

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# The Concept of God in the Theories of Freud and Jung.

An Essay about Ontological Choices  
and Epistemological Consequences

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## Introduction

Since its origins as a scientific discipline, Psychology has emerged in a field of tensions that have never ceased to present significant epistemological questions, mediated by methodological discussions and/or deliberate disagreements among its theoretical schools. Speaking about the existence of different schools in Psychology, Japiassu (1977) states that this is only comprehensible if we understand that these differences build up from the fact that there exist, in the root of the theories, previous philosophical options that determine this or that path.

We are, then, in a sphere of ontological and epistemological debate (which inevitably leads to an ethical one), in which it is interesting to know and understand how the objects of research in Psychology are constituted, and how the *psychic system* is comprehended, concerning its structure and functioning. It is generally thought and upheld — this occurs constantly with Freud and Jung — that the theories of the psychic subject are constructs that emerge from the clinical and laboratory practice. This is partly true, but it is also necessary to think about the ontological options guiding each author.

When it comes to the concept of God — this is an inevitable theme for Psychologies that aspire to construct a theory *as-complete-as-possible* with reference to the human being — these ontological options stand out in a very clear way, because this is a limit-concept, a concept that serves as an amalgam or justification for many theoretical and personal postures.

Matters concerning Religion, Religiosity, especially, the concept of God, are excellent for perceiving the weak points of the theories, as well as the options that sustain them and nurture the tension between one and the other. In this work, the focus will be on two important theories of Psychology: Psychoanalysis and Analytical Psychology, two theories which do not cease to oppose one another and pose problems for each other, which perhaps explains the distance that Freudians and Jungians prefer to maintain between themselves.

### Facing the Sphinx

The way Freud and Jung approach the question of Religiosity and Religion differs significantly and it is within this difference that a whole comprehension of Man and World is embedded. It is pertinent to notice, at this point, that the place given to Religiosity and Religion, in both theories, is in a direct relationship with the ontological status given to the concept of God. This is the key-point to be approached in this work, as will be explained further on.

This ontological difference lies latent in the tensions between both theories, but this does not discourage us from analyzing them from an epistemological angle as well, which will permit us to point out the approximations and distances between them and enable us to think about the consequences — for the theories and clinical practices — of using the concept of God in this or that way. The epistemological analyses of the two theories concerning the concept of God serve as a vector for comprehending the ontological options sustaining the theoretical constructs of each author, and as a way to think about the *interpellations* of these ontological presupposes in the daily practice.

In his *Varieties of Religious Experience*, William James states that: “To the psychologist, the religious propensities of man must be at least as interesting as any other of the facts pertaining to his mental constitution” ([1902/1997], p. 24). The same author draws our attention<sup>1</sup> to the fact that, if we wish to better comprehend the religious experience, we must focus on feelings and religious impulse instead of focusing on religious institutional issues (which, certainly, does not diminish the value of the Freudian and Jungian readings regarding the religious institution, because a different meaning is being discussed here, aiming at the understanding of a social mechanism beyond the psychological one).

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1. For example in *Group Psychology and the Analysis of the Ego* (1921/1996).

Both Psychoanalysis and Analytic Psychology refrain for a long time from analyzing the religious institutions and the meaning that God has in society and in people's lives, although their attitude towards these themes makes obviously distinct positions of enunciation. This fact allows us to infer that the conclusions of each theory are related to its authors' personal attitude in relationship with the concept of God, because if this is an inevitable theme, and the authors being subject to a religious culture that impregnates their societies, it is not surprising that both seek to give an answer to what they have experienced.

This work, however, does not aim at supporting its argument on personal preferences, but wants to emphasize how these preferences intermeddle in the scientific discourse, appearing in the form of logical and obvious arguments that cover the faulty points of the theoretical schemes.

This discussion is important, to my understanding, for two reasons mainly: first, because it removes from the theories the weight and responsibility of supplying a complete picture concerning human life — a tendency that usually appears deliberately or veiled in the theories. Second, because it refers to a significant sphere of human experience, religiosity, a sphere that has a practical imperative character (for believers and unbelievers) and has reappeared with force and insistence, arousing passionate answers from the scientific discourse; Psychology makes no exception.

As Lacan states in his January 27<sup>th</sup>, 1960 Seminar, we are indelibly referred to a religious paradigm: "The idea of creation is consubstantial to your thought. You cannot think, nor anyone, in terms other than in terms of Creationism. What you believe to be the most familiar model of your thought, in other words Evolutionism, is, in you as well as in all your contemporaries, a form of defense, to grapple with religious ideals ([1960/1997], p. 159).

Lacan does not defend Creationism and much less does he assume a religious posture. What he underlines is that such ideals constitute the actual texture of our reality and the way in which we apprehend reality. What he shows us is that we are indelibly marked by a specific form of reference in our relationship with the world, and this *imprint* brings with itself representations of what we have been calling the divine, since the very beginning of the mankind's history.

If religiosity and its outspreads, if God and his significances have such a great impact on our lives — and I am not questioning here the merit of stating his existence or not —, it is, to say the least, naïve to think that the psychological theories in question treat this theme in a free, unimpeded manner separated from extra-scientific mobilizations. It is naïve, also, to believe that the scientific discourse may exist without some form of transcendence, whether religious or laic.

The fact is that this problem always rouses human passions and invariably remits to the theories' limits, because the arguments adopted never reach the problem entirely. This is what Michael Palmer (2001) shows with reference to Freud and Jung, which can be extended to any theory.

Fundamentally, what distinguishes this work is the fact that God is placed as a problem. This, for certain, is not exempt from personal preferences. Differing from Laplace's posture, to my understanding the debate on the concept of God is fundamental for us to comprehend not only the structure and the ways followed by the theories of Freud and Jung, but also to widen our vision as to the approach of human being and life. To rule out this debate from the scientific field is only possible if we assume dogmatic postures, and this invariably limits our comprehension. Although I am not in accordance with all of William James' statements, I do agree with him that religious experience deserves a closer, more careful look, freed of prejudices. Reality, as Nicolescu (1996) states, is multi-dimensional; thus, to deny a dimension such as religiosity signifies, to say the least, renouncing one of the elements that compose existence, and the price we pay for this renunciation is that we bring some important *black holes* into the picture we are able to create about Nature and Life.

Furthermore, this debate returns to a question of a steadily increasing importance in nowadays' world. It is confirmed by the highly significant contemporary intensification of the appeal to religion and different mystic forms of thought about life. At least in Brazil, this is an obvious reality. The demographic census performed by the Brazilian Institute of Geography and Statistics (IBGE) in 1991 and 2000, shows a rise in the number of Brazilians who see themselves as religious.<sup>2</sup> This is not a Brazilian particularity: if we take a look in the outstanding increase in mystical films and literature (such as *Harry Potter*, *Lord of the Rings*, *Matrix*, *The Alchemist* etc.) and even in the *self-help wave*, we can see that this is a worldwide phenomenon. Apart from the statistical indications that challenge the scientific discourse in order to endorse a meaning for such a phenomenon, this new appeal to religion — in a world that was apparently ruled by the laity of science — calls upon us to dwell longer on the dimension of religiosity, due to the peril of reverting to simplistic and reductionist answers, which run the risk of being, once again, incapable of apprehending the significance given to religious experience or how much health and sickness religious experience holds.

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2. This and other data can be found on the site: [www.sidra.ibge.gov.br](http://www.sidra.ibge.gov.br).

### Some Elements to Decipher the Enigma

How far have we come with our stamina? How deep are we willing to delve? And to what extent does our *alpine audacity* goes, as Nietzsche (1888/1987) said? It seems to me that we interrupt the course of thinking the moment our injunctions of thought lead us to the unbearable, the moment in which they threaten to take us beyond what our theoretical decisions allow, and this also signifies beyond what our beliefs permit, since theoretic decisions lie on an obscure terrain, more or less revealed.

Psychoanalysis is a great contribution to the comprehension of the human being, due to its ability to take into consideration an intrinsic and constitutive tension, from a perspective in which the equilibrium is frail and necessarily dynamic, being the result of the driving (in the sense of the German *Trieb*) equations that repeat themselves all the time. This is fine. This approximates to a large extent the way in which I myself am crossed by life and world. This satisfies my aesthetic and ethical sense, and vividly reminds me of Russell: "We see, around the frail raft illuminated by the wavering light of human friendship, the dark ocean depths over which rending waves we dance for brief moments" ([1957], p. 66). Here we could easily hear the voice of Freud in *Why War?*, on his skeptic belief (if we can stand such a paradox) in the *processes of civilization*.

Here we could also consider that, in spite of the permanent tension that sustains us as civilized human beings, there is, in Freud, the wager on the growth of civilization, which is also a wager on the progress of science, a positive wager. And Russell ([1957], p. 66) continues: "From the vast nights that reigns outside, an icy blow flogs our shelter; all the solitude of humanity amid the hostile forces concentrate on the souls of the individuals, who must fight alone, with the courage they are able to invoke, against the entire weight of a universe that does not care about their fears and hope"

The force of *Civilization and Its Discontents* is remembered in these sentences, in these unities of meaning that seem to reverberate in the everyday experience of each one of us. And how pertinent, how actual they sound!

The merciless touch in our more obscure experiences, in the images repressed under the cloak of human conviviality, in faith, in intellectualizations is also an obvious potential of the psychoanalytic discourse. All of this is sufficiently poetic to hold truth.

However, behind the courage to penetrate the obscure in our psyche, also dwells the question concerning the alpine audacity of Psychoanalysis,

of how far it is willing to go and where it “decides” to stop. Regarding this matter, what has always troubled me is the difficulty I found in the psychoanalytic circles — in Freud’s texts, too — in relationship to Jung: the lack of openness to debate on his ideas (especially because he was a key-element of the psychoanalytic movement for a number of years); the hurried interpretations of excerpts from his work; the common sense that transits and is repeated without much rigor, concerning his person and his preferences for mysticism.

No matter how much we dislike astrology or anything similar, it is usual to find more prejudices than accurate opinions regarding Jung in the psychoanalytic readings and debates. On the other hand, I am aware that the receptivity of Jung (and of those who call themselves Jungians) to Freud’s texts is no less bellicose. But it is exactly about these impossibilities of acceptance that this essay deals with, and, since there is no time for everything, because death exists, as do, in its track, all the other limits that life imposes, my focus, at this moment, will be on the difficulties that Psychoanalysis faces if we admit Jung’s interpretation of the psyche, especially in relationship with the place that both theories give to the concept of God.

Why is the Jungian design of the psyche rejected in Psychoanalysis? Why does Jung create a point of non-inscription of significance, an absence, a non-said in the psychoanalytic debate? In short, what did Jung point out in Psychoanalysis, that became unbearable to it?

Peter Gay states (*apud* Roudinesco & Kapnist [1997]) that Jung did not want to be seen as a *crown prince*; hence, he had to distinguish his differences from Freud each time in a more incisive way. Although this may be true — and though we may really find in Jung’s letters displeasure regarding Freud —, this type of argument leads to judgments of value and not to epistemological elaborations that contribute to the comprehension of theoretic constructs. This way of reasoning drains the theoretic impossibilities that moved Freud and Jung to different ranges of human experience. However, it is exactly these impossibilities that register the conceptual differences between them and show, between the lines, where each was able to arrive.

Tangent to this discussion is the connection between Epistemology and Psychopathology: just as we state that there is an intrinsic relationship between Ethics and Epistemology, it is necessary to perceive the fundamental link between the theories and the specific passions and sufferings of their authors. This does not mean that theories vary at the convenience of their authors, but that there are moments when the scientific drive yields to arbitrary decisions, which cannot be upheld in any other way than through beliefs. It is at this point that passion speaks louder. It is at

this point that we can visualize where Psycho-Pathology<sup>3</sup> anchors itself in Epistemology and try to avoid or deny — desperately, at times — the interference of such decisions with the clinical practice. That is the reason and the way in which we can connect Epistemology and Ethics, because, if there are interpellations between our beliefs and the professional approach to patients, we must think whether it does not end up in interfering with the patients' beliefs, or inadvertently inducing our beliefs. Because of that, the psychoanalytic discussion about counter-transference is essential.

When theories touch the unbearable, we discover them in the silence and desolation of no longer having where to find support. It is the unbearable that we cannot reach — which can point to something different from what we believe — that leads us to making arbitrary theoretic decisions, as a way of appeasing the anguish of this space of non-significance or, on the other hand, of the space which points at the deviations of the way we choose to follow.

In Psychoanalysis, what would be this unbearable point, the moment of silence and arbitrariness? In a word, which in itself abridges a bigger problem than a word can support: God.<sup>4</sup> Psychoanalysis stumbles on this concept; Freud stumbles and Lacan stumbles, too. Although in distinct ways, both authors juggle in order to adapt this concept to what they think, to not exclude it, even without accepting it. Behind this concept is Freud's (veiled) refusal and Jung's (veiled) guaranty.

It would be simply impossible to write the whole psychoanalytic theory without referring to God, because, at least, this is a linguistic reality that operates in the fantasy of our civilized life and in the constitution of individualities. This concept functions as an interchange in the weaving of a significant network that forges human beings and casts us with an imaginary and symbolic ballast onto the uncertainties of life, leading us to Psychoanalysis or other therapies, by the astonishing inflation that this element can assume in the significance we give to existence.

If words are able to make us ill, God is a source of illnesses, no doubt; Freud disclosed this particularity well, showing the role of this reality in Schreber's paranoia, and the relationship of Religion with obses-

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3. Understood broadly as the logic of passions (of the passivity) which moves and enraptures us, a logic that constitutes our personality and, in the same way, leads us to creation through everyday life, but can also drive us to madness, to the psychopathologies, in the strict sense of the term.

4. Of course, it is not the only moment in which we can find decisions *dressed* as empirical findings, but I will limit myself, at this moment, to the concept of God. It would be necessary, as well — everything is intertwined —, to study concepts like the Libido, the Oedipus Complex and others.

sive neurosis. This is possible to follow and, as much as Freud, Jung states that the recourse to religious overjoy can be the consequence of a symptomatic movement of the psyche. When studying Miss Miller's fantasies in *Symbols of Transformation*, Jung points out that: "...the easy transformation of erotic impression into religious rapture can be explained by the occurrence of an act of repression" ([1952/1999], p. 51).

Jung is not unaware of the essential importance of sexuality; in the work called *The Psychic Energy*, he literally states: "We could call sexuality the *speaker* [my italics — R.B.G.] of instincts"<sup>5</sup> ([1954/2002a], p. 65). It is clear that behind such a statement a different notion of psyche is already embedded, which we will come to further ahead. What is important at this moment is to emphasize that Jung does not disregard the fact that religious images are connected to sexuality and that the association of both can culminate into a symptom the expression of which would be through religious images, as we usually see in psychoses. In this sense, Jung walks close to Freud.

Even so, Jung subverts (adverts, inverts) the Freudian position revealing Freud's blind point while, at the same time, he veils the latter's most intimate epistemological guaranty. What kind of subversion is this and to what extent does it conduct Jung?

In spite of admitting and discerning this connection between religious images and psychic symptoms, Jung crosses this position and establishes a dichotomy within religious symbology itself. He states that the divine images can be spontaneous as well as substitutive — in this case, as result of repression. In other words, the transformations of the libido performed by the psyche can use religious images in distinct ways; here we can already discern a first inversion in relationship with Freud, because these images — and the *Imago Dei* is central in this aspect — mislay the status of simple substitutive and compensatory recourses to acquire another position: here they are independent. They are symbolic, phylogenetic patterns which signify inner experiences and, furthermore, they create a determined pattern of response, which would explain the insistence of images that repeat themselves in the history of civilization. An

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5. According to the index *Gesamregister*, published by Walter Verlag, Jung utilizes both words *Trieb* and *Instinkt* with predominance to the first (a piece of information obtained from the French website <http://www.cgjungfrance.com/>, from webmaster B. Allain-Dupré). Jung's texts contain, then, the same problem of translation that the Brazilian Standard Edition of Freud's works presents in relationship with the term *Trieb*. The definition that Jung gives to the term *Instinkt* in *Symbols of Transformation* corroborates this posture and puts that term in direct approximation with the Freudian definition of *drive* (*Trieb*): "The instinct is a mysterious manifestation of life, partly psychic and partly physiologic" ([1952/1999], p. 126).

inversion in relationship with Freud occurs, therefore, in the fact that these symbols are primary, fundamental, and not mere effects, for instance, of the inhibition and/or displacement of the sexual impulse.

Apart from the esotericism of all this, a question arises. If there are two forms of expression for the divine images, one spontaneous and the other substitutive, how can one decide when the images produced are caused by paranoia, for instance, or when they are spontaneous transformations of the libido guiding our processes of individuation? A question that is not without difficulties, but Jung dares to look for an answer: "The divine image originated from an act of spontaneous creation is a living figure, an entity that exists by itself and, because of this, it becomes autonomous in its relationship with its seeming creator". And, if this does not already present enough difficulties, he adds: "As this refers to a natural phenomenon, *it remains unfolded whether a divine image is created or creates itself*" [my italics — R.B.G.] ([1952/1999], p. 52).

This is a key-point. The argument here is of the kind: if we cannot prove that it is so, we cannot conclude either that it is not so. Although this may seem simple, it does not cease to present a problem that many times we would like to shirk, because, concerning our two great mythical points — the beginning and the end of life — we are both condemned to building some conjectures and to realizing, at some moment, that these conjectures are a kind of fiction. There is no privilege of certainty and precision to the scientific discourse at this level, but, without minimizing the importance of each kind of discourse, the scientific one is also important.

It is a huge dare of Jung to state that there is a symbolic production, spontaneous and direct and independent, concerning the divine images. But how does he uphold such a statement? It happens that these images possess a certain *functional autonomy*, that Jung strives to demonstrate by investigating similar symbolic expressions in distinct cultures, separated by time and space. His research shows that certain symbols repeat themselves, though overlaid in distinct ways, proper to the idiosyncrasies and particularities of different cultures and historical moments. And how would this repetition be possible? Hence, notions arise little by little, such as the Archetype and the Collective Unconscious, that are primary in his theory and tied to the basic notion of Individuation, from which the psyche would have a finalistic tendency to emerge in specific patterns (archetypes). In short, sexual as well as religious images are, with Jung, forms in which the psyche expresses this finality; hence, to him the libido is an undifferentiated psychic energy, not necessarily tied to sexuality.<sup>6</sup>

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6. This is a simplistic exposition of the Jungian theory, but it is not the goal of this work to treat it in more detail. It is sufficient to point out that we see in the theories of Freud and Jung distinct conceptions concerning the structure and functioning of the psyche.

Looking at it, I never cease to be amazed, as was Ferenczi, in relationship with Psychoanalysis: « C'est tout de même une belle invention ! » (*apud* Roudinesco & Kapnist [1997]). An invention not that simple, which, at least, is set on a logical, perfectly plausible basis, and also (as Freud liked to state) referred to experiences gathered in the clinical practice.

When Jung states that we cannot decide, in fact, whether the divine images are created or they create themselves, he points to the fallibility of the Freudian discourse, because the comprehension that Freud draws about God is conclusive and relies on a specific, strictly not demonstrable presupposition: the metaphysical emptying of God's reality.

For sure, Freud gives a brilliant argumentative contour to this emptying, which guaranties to it a status of scientific debate. But underlying, in this apparently obvious position, is a philosophical decision, far from any empirical sustenance, distant from any observation, though pertinent and refined, above all by the form in which it adapts to the general design of the theory. This is how God appears merely formally, as part of an undeniable linguistic reality, but drained of the problems that it would present if considered in itself and not as a substitute. This is a mute point in the Freudian theory, a point which requires a decision; a point which demands a dogmatic posture in a specific sense, which corroborates the world-view of science.

Jung starts from the inference that God is a reality, but a psychic one, and this is his artifice: when he states God as a reality, but a psychic reality, Jung reveals a weakness in Freud's argument, a refusal of Freud veiled under a scientific argumentation. At the same time, he reveals his (veiled) epistemological guaranty, as Descartes does yet clearly: "But the figure of God is essentially a psychic image, a complex of representations from the archetypal nature, which faith considers identical to a metaphysical *ens*. Science has not the competence to judge this situation" (Jung [1952/1999], p. 53). This final sentence is quite pertinent and adequate to explain the position held by Jung. This position points to the disjunction between God as object of the religions and God as object of science. Furthermore, it conveniently serves to avoid heated discussions concerning a metaphysical entity which would serve as a reference to the concept and psychic image of God, although this image brings together the discussion about the origin of itself, and, by this path, a whole metaphysical champ of argumentation.

At this point, to my understanding, Jung's silence comes forth. In the same way in which Freud hushes the fact that his theoretic compositions concerning God serve a personal belief, Jung hushes the fact that this God, which is a psychic image, functions also as a *concrete enough* reality, an undecidable prior conjecture, a guarantee. Françoise Dolto (1999) was

more sincere and unabashed on this issue and simply assumed her belief and continued practicing Psychoanalysis. Here it would be pertinent to investigate whether this decision had some effect on her clinical listening.

In his metapsychological works, Freud clearly uses speculative reasoning, but with the restriction that the basis which sustains his efforts is empirical. Jung also works with statements of this kind. Beyond this, nevertheless (and revealing the supposed secondary character reserved to abstract lucubration) the term *speculative* is used as a form of subtle disqualification. This is what Freud<sup>7</sup> does with Jung. And what Jung<sup>8</sup> does with Freud. We must be careful, therefore, not to fall into the passionate game that both authors played. There are technical aspects that lie beneath this debate between them, which are of great importance.

Marilyn Nagy (1991/2003) points out significant argumentative difficulties in the Jungian theory and corroborates the opinion that behind an apparently empirical vision concerning the concept of God, there is a quasi-defense of God's factual existence. She calls attention to some non-empirical elements on Jung's writings (among them the Archetypes and the Collective Unconscious), emphasizing his bond with epistemological subjectivism. To Jung's comment that the reactions of the psychic system would reflect the behavior of a metaphysical reality, Nagy reacts: "As he cannot sustain the hope of really knowing it [this meta-psychic reality], Jung assumes that his own dreams and feelings really provide the evidence of an invisible (*i.e.*, immaterial) reality; that reinforces his subjective experience. Nevertheless, he states not to be a metaphysical" ([1991/2003], p. 176).

Statements concerning the concept of God lead inevitably to points of undemonstrativeness in theories. They bring us to moments in which it is inevitable to cling to axioms and raise conjectures to the status of demonstration. This occurs because theorists are moved by the necessity to compose a complete image for their theories. They find themselves before a sphinx: their empirical findings point to enigmas each time more complex and that directs them towards the necessary explanation regarding the origin of the studied facts.

Considering the human being as the focus of attention, and having psychic manifestations (especially unconscious ones) as objects of study, it is not surprising that the theoretic considerations need an uncommon vitality. It is impossible to escape from considering the nature of the psychic, the emergence of our communicative capacity, the genesis of our

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7. In *Two entries of encyclopedia* (1923), part B — *The theory of the Libido*.

8. For example, in a 1945 letter to pastor Dr. Fritz Buri (2002b) and in *The Psychic Energy* (1954/2002a).

representations and our capacity to represent. It is inconceivable that the human being is aloof of notions such as love, hate, belief, unbelief, solitude, anguish, God, meaning of life, happiness, sadness — among many others.

The necessity to bring order and a certain completeness to this complex picture that constitutes human life leads to speculative activities subjacent to empirical experiences. This, as Nagy shows, occurs abundantly with Jung. It also occurs with Freud and even with Lacan. Freud makes God derive from our constitutive helplessness and weakness. To Freud, gods, demons and whatever more refers to the numinous must be understood as *creations of the mind*, which is undeniable, although it does not imply the existence or not of such entities, neither is it sufficient to assert that *we* are the inventors of such creations. Lacan, on the other hand, purifies Freud's language, making it less *romantic* and closer to an academic language. Even so, he does not depart from what Freud said and circumscribes the problem regarding God by using concepts such as the Real and *das Ding* (the Thing).

Lacan carries out a structuralist argument to deal with this question because, although he states that the Real escapes from symbolization, and even though he says that *das Ding* — this mythical and constitutive (dis)encounter with a *quantum* of the Real, which supplies us with the pathway to the structure we assume from what the Other demands of us, from the enigma the Other can produce in us — is also in a point of non-apprehension, he cannot deal with it aside from the significant chain and he uses these operators only to give names to absent points in this same chain. In other words, he uses these terms to cover the flaws in the significant chain; and with this procedure he gives name, gives limit, gives body to what was before just an imposition of life, a demand, a disorder, an astonishment, a hallucination.

Surely, the way of naming these terms — deeming them beforehand as not possible to construe as a concept, apprehending them in principle as non-apprehensible, naming them as unnamable — allows a horizon of very extensive study and opens the possibility of considering the human being in an ample way, confronting us with the fluidity of the modern world, removing the oppressive and crystallized burden that the religious education has left as a legacy. It is a kind of language that refines what was already said by Freud: a world empty of God or, even better, a world from which God has been emptied, circumscribed.

In summary, the rearrangement of Freudian notions, that Lacan brings about, shows a subject confronted with new questions, but also shows the aspects of the universality of the psychic constitution, which has already been disclosed by Freud, and for this reason it is comprehensible to see Lacan stating *der Wunsch* (the Desire) as being at the same time universal and unique, personal, particular to each person.

Even so, Lacan brings about a silence in this field. I am probably running the risk of being taken as a crusader in search of restoring the revealed truth, but I assume the risk of this misunderstanding when I state that both Freud and Lacan evade the problem which would be to have God as a reality to be discussed, because to include this problem would demand, at least, an other conception of the psyche. Here the term *God* is used just for convenience, with the awareness that it is necessary to get away from the limitations that this term provokes, above all by the weight it brings itself in the imaginary of the Western mind.

The silence which I refer to is in the fact that one avoids the discussion about a *transcendent principle* to the psyche, a principle pointed by this *far beyond* to the significant (which is the Real and which is *das Ding*) that is only tied to the significant in the point that touches it, and by no way the interrelation between the significant and the Real can be peremptorily affirmed as completely dependent on the significant.

If gods are a form of revelation of the Real, as Lacan states in his Seminar about *Transference* (1961/1992), and if *das Ding* can be thought of as the Supreme Being (and as God<sup>9</sup>), this, nevertheless, is reduced to a merely formal proposition. God is comparable to *das Ding*, the gods to the *Real*, and if we ask ourselves what *das Ding* is and what the *Real* is, the answer emerges inverted: The *Real* is what we express in figures such as the gods or God, or any other element that shows a point outside the significant chain. However, contrary to religions, these propositions (arbitrarily) empty out the *Real*, rendering it meaningless and chaotic *if* outside the significant chain, being its nomination a first inscription, a first limitation to what escapes us, but which would only have sense to the extent we signify it.

The silence I refer to, however, is also tied to the fact that there is a refusal of the hypothetical possibility of this Real having a certain pre-structure. This could well seem to be a metaphysical chat, but Jung's empirical findings lead his theory to thinking exactly this: "...there is also a thought in primordial images, in symbols, which are older than the historical man, born with him since even older times; and eternally alive, they survive all generations and constitute the foundation of our soul"<sup>10</sup>

In Lacan, this Real is comparable to emptiness, the empty that religions try to avoid at all costs: the emptiness of having nothing to say, nothing to bring; the emptiness of a God dead since always. In Jung, nothing

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9. An association made by Lacan, in his 7<sup>th</sup> Seminar, when speaking about the moment in which Moses receives the Tables of the Law, on Mount Sinai.

10. Jung, quoted by Nagy ([2003], p. 45). This statement, together with others the author makes along the same line, goes towards answering the question of how it is possible that the same symbols repeat themselves in cultures separated by time and space.

authorizes us to consider what does not cease to inscribe itself and to return to the same place as something empty. Jung constructs this structure in a way as coherent as Freud and Lacan do, only in an inverted sense. There is a *knowledge of life* in itself, that penetrates and sustains the psyche, which presupposes a prior structure, even though we are incapable to understand it completely, even though we get only flashes of it. It is only the possibility of a certain correspondence between the obscure of the psyche and the obscure of life that allows Jung to state that the unconscious anticipates facts.<sup>11</sup>

### (In)conclusions

Freud states that Psychoanalysis does not constitute a *Weltanschauung*, a world-view, but would take part in the *Weltanschauung* of science, with the peculiarity of "...having extended research to the mental area" (Freud [1933/1996b], p. 156). I fear, however, that it is only partially true. If we take the definition that Freud gives to the term *Weltanschauung* as an intellectual structure that solves all our problems, in a uniform way and based on a dominant superior hypothesis which would not leave any question unanswered (Freud [1933/1996b], p. 155), we see that Psychoanalysis ends up by operating on this sphere.

With this, I do not mean that Psychoanalysis solves all our problems and it certainly differs substantially from the world-view of religion in renouncing the guarantees that this view swears to provide; nevertheless, it is certain that Psychoanalysis acts with superior hypotheses which are *organizers* of its vision regarding the human being and are not open to debate and to the relativity of empirical findings. It occurs with the notion that the Libido is necessarily sexual<sup>12</sup>, it occurs with the notion that God is a substitute for the father figure and an *Ersatz* of our constitutive lack; and with the hypothesis that the movement of the psyche is predominantly regressive.

Jung works with hypotheses opposite to these, making the Libido a general psychic energy, placing God (the *Imago Dei*) as a fundamental and primary problem (and not as a derivative), claiming that the psyche, apart from having a regressive movement, also has a finalistic character.

This impact, as mentioned above, is not solved on the empirical ambit and remits to the metaphysics special to each one of us; remits to

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11. Cf. the letter to Professor Gustav Schmalz, from September 4<sup>th</sup>, 1932 (Jung [2002b]).

12. It is important to point out that sexuality possesses an abyssal extension with Freud, above all after its ultimate formulation concerning the psychic apparatus, in elaborating the notions of drive (*Trieb*) of life and drive (*Trieb*) of death.

how much each one of us has chiseled the world-view of science, adding to it aspects of transcendence which are inevitable when dealing with the psychic reality and its foundation as experience, an experience that can be systematized.

It is far from my intention to state that these authors found religions in a veiled way, yet the debate concerning the concept of God shows us derivative points in their theories. On the other hand, these points bring to light different conceptions of the psyche that rule Psychoanalysis and Analytic Psychology, and this is not simply a result of clinical research, but remits to the philosophic foundation, properly metaphysics<sup>13</sup>, of the scientific theories.

All is not necessarily bad about this. Dogmatism is established only when we need to cover these points of non-significance; the moment in which we veil what is a decision with the hood of discovery.

This mechanism of concealment is as constitutive as the fundamental incompleteness of some mathematical theories, as proved by Gödel. We can consider that this occurs in sciences because we do not have the conditions to embrace the totality of human life and because our theories are necessarily smaller than life. In elements of tension such as the concept of God, this peculiarity of the theorists and theories appear in a clear way. This would not be a problem if we could accept, with Adorno, that the thinking which does not allow self-beheading results in transcendence (quoted by Penzo [1993/2002]).

But how many of us are willing to accept this? Will our audacity go to such an extent? The theories that we construct do not cease, also, to be a symptom, a form of pacification in which we equate our passions with the search for comprehension of our ephemeral existence. Our theories, however, lead us to thinking about life and its uncertainty, they include as an element of significance the anguish that consumes us all when faced with our radical ignorance: our theories are always solutions of the conflict and demonstrate our audacity as much as our fears.

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# Nihilism and the Problem of Being

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Let us begin with a basic definition of the term *nihilism*, taken from the *Routledge Encyclopedia of Philosophy* (London and New York, 1998, p. 6060): "As its name implies (from Latin *nihil*, 'nothing'), philosophical nihilism is a philosophy of negation, rejection, or denial of some or all aspects of thought or life". As can be seen from its definition, nihilism is closely correlated with negation or denial and could take an absolute and generalized dimension, dismissing all aspects of reality, or could evolve into a more particular or relative set of rejections, concentrating on narrower areas; thus, we have political nihilism, moral nihilism, and so on.

To proceed, let us lay down more direct definitions of the concept, belonging to Nietzsche and Heidegger. In his *Will to Power*, Nietzsche gave this explanation of nihilism: "*The highest values devalue themselves. The aim is lacking; why? finds no answer*" ([1968], p. 9). We can see here that nihilism is a philosophy of crisis, achieving its full potential at the historical "moment" when the beliefs and truths of a certain society lose their normative appearance and their consensual force. Those values, once unmasked as being petty and inconsequent regulations of a certain moral, can no longer play an active part in the *Bildung* of a determined community. Nihilism comes as an agent of exposure, which unveils the overwhelming purposelessness by describing the lack of motivation, the absence of vitality and the drift of the life instincts: "*Why? finds no answer*".

Heidegger goes a step further in analyzing this crisis: "[To Nietzsche, nihilism] is a *historical movement* affecting *Western history* and epitomized as *God is dead*. The Christian God has lost his power over beings and human destiny; he is like a long-dead star continuing to shine illusorily" (Inwood [1999], p. 142).

Apart from the definition of nihilism as a historical movement, we must keep in mind the connection between nihilism and the death of God.

The demise of God is the paramount expression of exposure, insisting that not only the Platonic and Christian traditions have lost their authority and can no longer be effective, but also that metaphysics as an extensive study of Being must come to an end. For the purpose of this study, we will use a more particular definition of nihilism, directly linked to Heidegger's interpretation — we will understand nihilism in its "higher expression" as a radical denial of Being, mentioning also that we understand "Being" as the philosophical approximation of God.

We must make some explanatory remarks about the distinctions between nihilism and atheism (and, furthermore, between atheism and anti-theism), because they might prove effective for our discussion. Ernst Mayer explained this fundamental distinction in his *Critique of Nihilism* (*apud* Diaconu [1996], pp. 40-41): "[Atheism] is an intellectual way of clearing one's mind of an almighty divine force. [...] The atheist thinks abstractly. On the contrary, the nihilist is acquainted with nothingness. He does not deny divinity with a simple negation, he contests divinity, accomplishing an inner act."

This proves an important distinction, if we want to achieve a more detailed, not only philosophical or theological, but rather psychological description of nihilism. The atheist places himself in a safe zone — he uses his intellect to distinguish himself from divinity; thus, "the world does not lose its value" (Diaconu [1996], p. 40). The atheist denial is, therefore, neutral (an intellectual separation from a system of beliefs, that he finds to be incorrect). The nihilist dismissal of God must be understood in a different manner: it is an inner action that involves its complete being. Using a famous Augustinian remark, influential in theology, which stated that the inner self was identical with the divine mind, we may deduce that nihilists, denouncing and attacking divinity, are in fact harassing their own affective. Thus, the nihilist denial is passionate, complete and radical, placing the nihilist self in a psychological war zone.

A second distinction between atheism and anti-theism could be made by using the philosophy of rebellion provided by Albert Camus ([1951], p. 436): « Le révolté métaphysique n'est donc pas sûrement athée, comme on pourrait le croire, mais il est forcément blasphémateur. Simplement, il blasphème d'abord au nom de l'ordre, dénonçant en Dieu le père de la mort et le suprême scandale. » The neutral atheism is a way of conceiving the world from a distance, without *pâthe*, a cold and reasonable *Weltanschauung*, while antitheism, like the Nietzschean active nihilism, wants to involve itself in the exposure of the "devalued values".

Heidegger's *Letter on Humanism* provides important knowledge on the relationship between Being and nothingness: "The nihilating in Being is the essence of what I call the nothing. Hence, because it thinks Being,

thinking thinks the nothing." Earlier, Heidegger stated that "in [Being] is concealed the essential provenance [*Wesensherkunft*] of nihilation [*Nichtens*]" (Heidegger [1998], pp. 272-273). We understand that nihilism, which has at least a linguistic familiarity with nothingness, could be perceived as a partner of dialogue for Being itself.

Of course, nihilism was defined before as a radical refutation of Being and, as we have seen from the difference between nihilism and atheism, the former implies total personal involvement, being something entirely distinct from an intellectual game, so we could have translated nihilism as a negative reactionary philosophy of Being, as a sort of meontological debate. But we learn from Heidegger that "nihilating" [*das Nichtende*], the "essence" of nothingness, comes from being. In a more intuitive language, Being and nothingness are entwined, they go together. Maurice Blanchot's commentary on nihilism sheds some light and makes us more familiar with this way of conceiving the terms not as two mutually exclusive categories: "Until now we thought nihilism was tied to nothingness. How ill-considered this was: nihilism is tied to being. Nihilism is the impossibility of being done with it and of finding a way out even in that end that is nothingness. It says the impotence of nothingness, the false brilliance of its victories; it tells us that when we think nothingness, we are still thinking being" (Blanchot [1993], p. 149) .

Nihilism is, therefore, a critique of being, not an analysis of nothingness. We could advance a step further and claim that meontology<sup>1</sup> can explain more than mere ontology, because it is the indirect, more profound and more dangerous route to Being. A philosophy of nothingness *per se* cannot enlighten this relationship; however, nihilism conceived as a philosophy of Being (from a radical negation to an indirect manifestation there is only a small step) should make us rediscover through a necessary detour the ontological qualities and truths, avoiding the realm of tautology.

In a previous lecture, "What is Metaphysics?", Heidegger made some important distinctions about nothingness and being: "The nothing is the negation of the totality of beings; it is nonbeing pure and simple" (Heidegger [1998], p. 85). The English language cannot accurately reproduce the German expression of the ontological difference, between *Sein*

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1. *Meontology* or the philosophy of Non-being is the direct contradiction of *ontology*. The term was used by Eugen Fink in the 1930s, in his attempt at rediscussing Heidegger by using Husserl's conceptual apparatus. The idea was later developed by the philosophers of the Kyoto School. One of them, Nishitani Keiji remarked: "Clearly the idea of Absolute Nothingness came to awareness in the spirituality of the East; but the fact that it has also been posited as a foundation of philosophical thought represents a new step virtually without counterpart in the history of Western philosophy" (*The Stanford Encyclopedia of Philosophy*).

and *Seiendes* (Being and being or entity). We must note that in the above Heideggerian quote, he mentions “nothing” as an antithesis to *Seiendes*. The German philosopher makes another important distinction between negation and “nothing”, claiming that the latter is the source of the former: “The *not* does not originate through negation; rather, negation is grounded in the *not* that springs from the nihilation of the nothing” (Heidegger [1998], p. 92). As human beings, we can experience nothingness through the “basic mood” of anxiety. Heidegger develops Kierkegaard’s distinction between anxiety [*Angst*] and fear [*Furcht*], the first one being indeterminate: “The receding of beings as a whole, closing on us in anxiety, oppresses us. We can get no hold on things. In the slipping away of beings, only this *no hold on things* comes over us and remains. Anxiety makes manifest the nothing. [...] Because beings as a whole slip away, so that precisely nothing crowds around, all utterance of the *is* [*jedes Ist-Sagen*] falls silent in the face of nothing” (Heidegger [1998], pp. 88-89).

Anxiety takes us away from being, we could say that that is a form of estrangement — something else, more fundamental than *Seiendes*, reveals itself. The presence of nothingness (as seen from the words *kein* or *Nein-sagen*) renders our biological rhythm silent. We could conclude that anxiety makes us acquainted with nihilism, giving us the sort of nothingness-knowledge that completely alters and deepens our horizons. In his *Tears and Saints*, in a Dostoyevski-like manner, Emil Cioran gives a concise and existential definition of fear: “To fear is to die every minute” (Cioran [1998], p. 23). In a similar direction, Paul Tillich remarked that “the fear of death determines the element of anxiety in every fear” (Tillich [1952], p. 38).

Now that we know that nihilism could be described as an indirect philosophy of Being, we must explore a famous aphorism from Nietzsche’s *Gay Science* which marks the end of metaphysics and the historical advent of nihilism: “Where is God? [...] I will tell you. *We have killed him* — you and I. We are his murderers. But how did we do this? How were we able to drink the sea? Who gave us the sponge to wipe out the entire horizon? What were we doing when we unchained this earth from its sun? Where is it moving to now? Where are we moving to? Away from all suns? Are we not continually falling? And backwards, sideways, forward, in all directions? Is there still an up and a down? Are we not straying as though through an infinite nothing? Is not empty space breathing at us? Has it not got colder? Is not night and more night coming again and again? Do not lanterns have to be lit in the morning? Do we still hear nothing of the noise of the grave-diggers who are burying God? Do we still smell nothing of the divine decomposition? — Gods, too, decompose! God is dead! God remains dead! And we have killed him!” (Nietzsche [2001], pp. 119-120)

We have here a multiple answer to the problem of the extinction of Being. First, Nietzsche speaks of the historical demise of Jesus Christ, who was crucified by "us": "At the bottom, there was only one Christian, and he died on the cross" (Nietzsche [2007], p. 32). This line of thought was later developed by the Death-of-God theology; we will come back to it. Analyzing the incisive message, we see absolutely no blasphemy, but a historical interpretation of facts. Second, we have a conflict between immanence and transcendence, two unequal categories that are in a state of war. To put it bluntly, if God was almighty, the universal creator and so on, how could human beings invade his kingdom and take his place? This state of war, obvious from Enlightenment to Romanticism, ends with the secular victory of the human being, which gains autonomy, intellectual freedom and gives birth to the modern individualism. The immanent conquest of transcendence or the humanistic transgression can be seen also as a victory of the temporal over eternity or as a landslide of the finite over infinity ("Who gave us the sponge to wipe away the entire horizon?"). It is a way of realizing the "impossibility" and a victory of the absolute contradiction over almighty coherence.

Third, that is the reason why this passage marks the impotence of the modern secularized being of governing its own existence: because the death of "paternalistic" authoritarianism goes hand in hand with the demise of the historical values that shaped the development of our society. Nietzsche advocates a different point of view than does Kant in his essay *An Answer to the Question: What Is Enlightenment?* — if the latter insists on "the human being's emergence from his self-incurred minority", the former implies that a Death-of-God situation could cause a regression of the human being, which loses contact with the transcendental qualities that once characterized him. The human being, finally left alone, can experience the power of radical nihilism ("Are we not straying as though through an infinite nothing? Is empty space not breathing at us?") Therefore, we have a fourth explanation to the aphorism. As many noticed, Nietzsche employs a sort of subliminal Christianity in the description of the death of God. Not enthusiasm, but anxiety is the "basic mood" of this picture. Unlike Stirner or Lautréamont, who rejoice radical secularization, Nietzsche understands that his words mark the disappearance of a world (a kingdom of God that was effective for centuries) and sees that human beings would be unable to survive without their religion, if they did not evolve or did not conceive a higher purpose, that could allow them to escape nihilism.

Altizer, one of the initiators of the Death-of-God theology, explains in *Radical Theology and the Death of God* that "we will simply assume the truth of Nietzsche's proclamation of the death of God, a truth which has thus far been ignored or set aside by contemporary theology. This means

that we will understand the death of God as an historical event: God has died in *our* time, in *our* history, in *our* existence" (Altizer – Hamilton [1966], p. 95). In another important article, *The Challenge of Nihilism*, he thinks of Nietzsche as "perhaps our purest theological thinker" (Altizer [1994], p. 1013) He explores the Nietzschean clash of the two nihilisms, the first one inherent to anti-vitalist Christian religion and especially morals, the second one (anti-nihilism) aiming at destroying the Christian values: "Nietzsche could understand [Christianity] as the greatest catastrophe in world history, for at the bottom Christianity is nihilism incarnate. [...] A uniquely modern nihilism is ending Christianity, an apocalyptic ending which is nothing less than the death of the Christian God, a death of God which has ushered in our nihilism, for our nihilism is the mortuary of God" (Altizer [1994], p. 1013)

From this texts we can see the stake of this theological movement, that was influent in the 1960s. First, we might say it consists of an interdisciplinary approach, notching off a philosophical concept (the death of God) from its context and applying it to theology. Second, as we have seen from Nietzsche's declaration, the immanent death of Christ (understood as an historical event) is the core of this radical theology: Altizer argues that no transcendental standpoint could be effective, once we have accepted the demise of Christ. Third, the purpose of the movement might be understood as a way of rebuilding Christianity, which continues to be effective as a way of life even if the historical hypothesis of God has been removed. That is exactly why Gianni Vattimo wrote, in *After Christianity* (*apud* Rorty – Vattimo [2005], p. 24), that "Since God can no longer be upheld as an ultimate foundation, as the absolute metaphysical structure of the real, it is possible, once again, to believe in God". I think that the Italian philosopher implied that even if the metaphysical and dogmatic God perished, we would still be able to have a direct connection to a personal God of our own choice.

We will turn the switch now and take a closer look at nihilism from the theological point of view. In *The Courage to Be*, Paul Tillich discusses the relationship between Being and non-being and the essential part played by anxiety in their connection. We must understand his work as a direct reference to the Heideggerian discourse, because the Protestant theologian intended his book as a reply to the German philosopher. In one of the final sections of his book, expressively called *Non-Being Opening up Being*, he stated: "Non-being drives being out of its seclusion, it forces it to affirm itself dynamically. [...] Non-being makes God a living God. Without the No, he has to overcome himself and his creature, the divine Yes to himself would be lifeless. [...] We could not even think *being* without a double negation: being must be thought as the negation of the negation of being" (Tillich [1952], pp. 179-180).

We remember here the Heideggerian line of thought, which understands that nothingness and Being go together, the Blanchot's note that nihilism is connected to Being, and our remark that nihilism could be taken as an indirect philosophy of Being. If we proceed from a double negation of Being ("being... thought as the negation of the negation of being"), our meontology takes a necessary detour and a deeper philosophy of being could be built as a conversation with nihilism. There is an argument for the so-called detour: if we conceived being simplistically (as being-in-itself), and if we never came out of its sphere, isolating ourselves from the "negative" and "nothingness", we would have a dead picture of being, which could never describe the nature of reality. On the contrary, if our vision of being were born from the conflict with non-being, there would be a dynamic and vital result, which could enrich our perspective. Non-being "ignites" being, developing its characteristics and maximizing its conceptual force. That is exactly the reason why Tillich believes that an affirmation without its negation would be lifeless: it would be a mere tautology, a circular truth, a fact we pretend we have discovered, but one we have in fact known to be accurate from the very start, a powerless *yes* which impedes the pursuit of knowledge.

Remembering what Heidegger stated about the nature of anxiety as a revealer of nothingness, we advance by taking note of the thesis developed by Tillich: "Anxiety is the state in which a being is aware of its possible non-being. [...] Anxiety is the existential awareness of non-being" (Tillich [1952], p. 35). It is important to mark the word *awareness* — anxiety provides us with a sort of death-knowledge, an existential consciousness of mortality that opens our eyes and transforms us for good. We would not be able to conceive ourselves as existential projects, if this reminder or nothingness did not work properly. This "awareness of non-being" should activate the "courage to be".

A radical point of view upon nihilism, expressed by the Orthodox theology, was provided by Eugene Rose in his fragmentary work *Nihilism: The Root of the Revolution of the Modern Age*. Let us point out that we find Rose's arguments at least unfair — they seem driven by a dark enthusiasm, that could prove itself nihilistic. The author remarked that "indeed, the Christian is, in a certain sense — in an ultimate sense — a *Nihilist*; for to him, in the end, the world is nothing, and God is all." Nevertheless, we should take note of his diatribes, because it is interesting to have in mind how radical theology reacts to nihilism. Nietzsche's thesis of the two nihilisms (the original Christian one and the anti-nihilistic reply) should be instructive here also. First, Rose states that "The Nihilist, to be sure, is in some sense *sick*. [...] The Nihilist takes an active part in the work of Satan..." (*ibidem*)

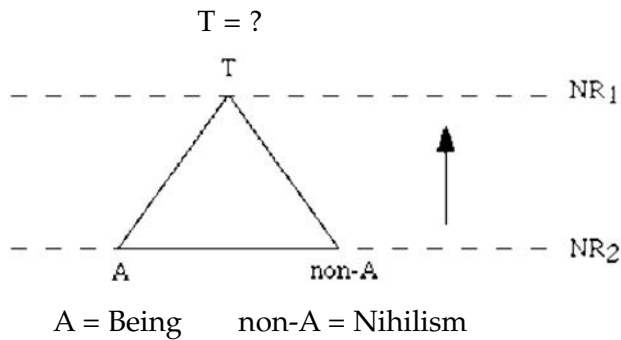
It is true that we have defined nihilism as a radical refutation of Being — a radical denial of God, to put it more bluntly. But I think it is clear enough that to radically deny divinity does not mean to passively affirm Satanism. Rose's logics is strictly binary — and as we have seen before in Heidegger, Tillich, or Blanchot, nothingness and Being have enough connections between them to become conversational partners. Another common sense fact is that affirming a different kind of deity is in fact a form of theism — and then the nihilist agenda would be contradictory or absurd. It is a sort of misunderstanding and a proof of reverse psychology in the case of Rose — Nietzsche calls the Christian "sick", the Orthodox theologian does the same with the nihilist. This kind of reaction cannot qualify for a dialogue, being more like a fight. This could serve as a basic observation of Rose's book and we should speak about it because his angry rebuttals could be perceived as an arithmetic means of the Christian dogmatic responses to nihilism.

Rose also remarks that: "No man, we have said often enough, lives without a god; who then — or what — is the god of the Nihilist? It is *nihil*, nothingness itself — not the nothingness of absence or non-existence, but of apostasy and denial; it is the *corpse* of the *dead God* which so weighs upon the Nihilist" (*ibidem*). Two observations can be made here. First, it is true: etimologically and ontologically, nihilism begins with nothingness. And there are lots of proofs of "ecstatic" nihilism, that transfer theological attributes to nothingness. A quick example for this type of attitude is provided by Emil Cioran: "Without God, everything is nothingness. But God is the supreme nothingness!" (Cioran [1998], p. 74) After this start, however, as we have seen, nihilism makes a detour to Being — as a critique and analysis, as a reverse philosophy of Being. Second, it is arguable that "no man lives without a god". To go on this side of nihilism, atheism can be seen as a "sane" and successful attitude. As we have seen, the atheist denial of God is a neutral refutation that does not reject the value of life or of the world.

After we have discussed this controversy of nihilism (a radical denial of Being, a result of the statement "God is dead", a consequence of the destruction of the values, an attitude promoted by Christian theology and morals, a malady of sorts, a philosophy of non-being centered on anxiety or a partner of conversation for Being), we will make a trans-disciplinary experiment and see which is the included middle of nihilism and Being. Basarab Nicolescu expands on the logic of the included middle developed by Stéphane Lupasco, creating the new decisive concept of "level of Reality": « Pour obtenir une image claire du sens du tiers inclus, représentons les trois termes de la nouvelle logique — A, non-A et T — et leurs dynamismes associés par un triangle dont l'un des sommets se situe

à un niveau de Réalité et les deux autres sommets à un autre niveau de Réalité. Si l'on reste à un seul niveau de Réalité, toute manifestation apparaît comme une lutte entre deux éléments contradictoires [...]. Le troisième dynamisme, celui de l'état T, s'exerce à un autre niveau de Réalité, où ce qui apparaît comme désuni [...] est en fait uni [...], et ce qui apparaît contradictoire est perçu comme non-contradictoire » (Nicolescu [1985]).

If we insert the two contradictory terms (nihilism = denial of Being and Being) in a system of the logic of the included middle, what will our results be?



We believe that we can provide two historical answers on the T-state between Being and nihilism, and a third one which is our personal contribution. First, the included middle could be the Heideggerian *Dasein*. Heidegger described the concept in *Being and Time*: “*Da-sein* is my own, to be always in this or that way. [...] The being which is concerned in its being about its being is related to its being as its truest possibility. [...] The *essence* of this being lies in its to be. [...] Because *Da-sein* is always essentially its possibility, it *can choose* itself in its being” (Heidegger [1996], pp. 39-40).

We could present the Heideggerian term as the included middle between nihilism and Being for two reasons: because *Dasein* has a privileged relationship to Being and, as we can see from the lecture *What is Metaphysics*, *Dasein* is connected to nothingness: “Being held out into the nothing — as *Dasein* is — on the ground of concealed anxiety makes the human being a lieutenant of the nothing” (Heidegger [1998], p. 93).

Another historical solution is provided by Nietzsche, with his long misunderstood and controversial concept of *Übermensch*: “I teach you the Superman. Man is something that should be overcome. [...] The Superman is the meaning of the Earth” (Nietzsche [1961], p. 23). As can be argued, the Superman is not a mere opposition to the Christian God; being in fact a term that takes its force directly from human immanence, it must be conceived as “the meaning of the Earth”.

Our personal contribution to the solution of the included middle between nihilism and Being consists of the construction of a new hypothesis — we think that the T-state could be *the straightforward awaken human being*. This human being would have these characteristics: (1) it wants to develop itself; (2) it conceives its existence as a project; (3) it believes in dialogue and it is able to know its internal alterity; (4) it conceives God as a possibility and sees nihilism as a way of searching for God.

The straightforward awaken human being may be a successor to the historical developments of *Übermensch* and *Dasein*, an addition to them, and contribute to the effort to edify an integral and coherent humanism.

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## Wilfrid Sellars and the Scientific Image of Man

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There are a plethora of philosophical, theological, and scientific interpretations of what man is. Among these, some are quite similar, while others are at extreme opposites. A popular way to define what we are is in physicalist terms, that is, all mental and physical behavior is explainable as products of electro-chemical impulses. This form of reductionism seems to supplant the theological notion that a soul is in control of our movements both physically and/or mentally. It also seems to create a chasm between theology and scientific discovery, which, for some people, can and should never be bridged. The two disciplines seem to be at odds with each other when defining a human being, understanding the creation and evolution of the world and all of its inhabitants, and in understanding what happens to us when we die. The difference seems to be clearly evident. It is between the observable and empirical and the unobservable and metaphysical.

However, there are epistemologists who believe the contrary. For example, Nancey Murphy, a non-reductionist, strives to show the compatibility between, on the one hand, theological and philosophical speculation and, on the other hand, scientific experimentation and observation. Wilfrid Sellars, a scientific realist, combines a philosophical and theological interpretation of a human being with that of science to create, in his opinion, a more complete and accurate definition. It is with the latter that we will concern ourselves for our objective is to see how philosophy, theology, and science can offer a more insightful definition of what we are.

Scientific realism is a combination of a philosophical and scientific approach to explaining and defining the self. It is more philosophical and scientific than it is theological, philosophical, and scientific. However, this

issue does not provide a problem for us since a philosophical interpretation of man could be theological in the sense that a soul is thought to be the agent of our movements. In Sellars' opinion, philosophical speculation, on its own, cannot provide the individual with enough certainty so that he or she may correctly judge the reality of a perception, the reason being that philosophers only know half of the truth and have long since constructed an incorrect definition that they call the manifest image of man. The manifest image of man becomes lost in overanalyzing or oversimplifying the definition of a human being. It gets caught in theories of what a human being is and what it is not. It defines the human being in terms of electro-chemical impulses and of the behavioral influences caused by family, by friends, by society. These behavioral patterns influence our own behavior as well as the perception of the self and the intersubjective perception of the others. Therefore, Sellars' dismay with a philosophical interpretation of man is summarized in two ways. First, reductionism is an incomplete way of defining the self, since the individual is more than a product of the electro-chemical impulses in the brain. Second, sensory data does not contain epistemic value since physical objects do not exist. Philosophers only know man at the speculative level which by no means provides enough knowledge to completely define a human being.

To correct this problem, Sellars uses scientific discovery, observation, and experimentation in conjunction with philosophical speculation to attain a more complete and certain definition of man. Such an image is more accurate than the manifest image because, unlike philosophers who can only know an object at the speculative level, scientists are able to know an object at both the perceptible and the imperceptible levels with a greater level of certainty.

This new image is called the scientific image of man (Sellars [1963], p. 19). It helps understand the relationship between the subject and the object, which, in turn, provides certain knowledge of the self. The partnership works in the following manner. Philosophical speculation provides the theoretical knowledge of man and science provides the biological, physical, and chemical knowledge of man. The philosophical aspect of this image involves using linguistics and logic, while the scientific aspect uses observation and experimentation. Science offers the methodological framework that the manifest image lacks. Sellars writes that the scientific image of man is "methodologically dependent on the world of sophisticated common sense" (Sellars [1963], p. 20); it uses these methods in its explanation of how the activity of imperceptible entities such as mental causation brings about an external behavior or physical response from the individual's body. The scientific image is made up of the many contributions of private and uniquely constructed images of man made by the different scientific branches, that is, biology, physics, and chemistry.

The biologist, the physicist, and the chemist all have their private and unique images of man relative to the application of their specific scientific framework. For instance, the biologist will have a biological scientific image of man and the physicist will have a scientific image of man according to the precepts of physics.

The scientific image is not without its own set of imperfections, since scientists constantly redefine the human being with every new discovery. Therefore, since neither attempt is perfect, the scientific realists join the two images to form one complete image. The scientific image of man is a middle ground between philosophy and science.

The difference between the manifest image of man and the scientific image of man is not a difference between a scientific and a nonscientific image. Rather, the difference stands in the way the two images explain the relationship between the outer and inner physical and mental behaviors of the human being. Sellars writes, "It will be remembered that the contrast I have in mind is not that between an *unscientific* conception of man-in-the-world and a *scientific* one, but between that conception which limits itself to what correlational techniques can tell us about perceptible and introspectible events and that which postulates imperceptible objects and events for the purpose of explaining correlations among perceptibles" (Sellars [1963], p. 19).

Sellars disagrees with philosophers and their explanation of how self-knowledge is attained. He calls the manifest image "the framework in terms of which man came to be aware of him as man-in-the-world" (Sellars [1963], p. 6). For Sellars, an individual attains self-knowledge by being aware that he is in control of all mental and physical human activity.

A person can know the self within other people through verbal communication. A person speaks his or her thoughts and therefore reveals to another person his or her self. Therefore, I can know your self by simply speaking to you and asking questions. And when you speak to me you reveal the self within. For your thoughts are who you are. The self is a mind, a collection of thoughts and concepts.

However, in order for the self of others to be known, an individual needs to be present to comprehend the thoughts of the one speaking. Sellars labels this type of knowledge as "double knowledge" (Delaney *et al.* [1977], pp. 198-199) and says that every human being possesses such an awareness of the self in others and as the one doing the perceiving.

Knowledge of the self is identical to knowledge of the self in its environment. In other words, the self that controls the body knows that it controls the body. Self-knowledge is visible on two fronts, internally through the awareness that the mind controls the physical and mental aspects of the human being and externally by acting on the intentionality

of the mind. Double knowledge is the simple analysis of the causal relationship between the mental aspects and the physical aspects of the human being. What is thought is relational to the movement of a particular part of the body. For example, I say, "I move my arm" and my arm moves so I can conclude that I move my arm. So there is a direct link between a mentation and physical behavior. This is similar to the identity theorists who explain that for every physical activity there is a corresponding mental activity.

The self is more than just a product of the communication between synapses. Sellars criticizes the reductionists for bestowing neurological activity with an overabundance of causal properties. The reductionist and mainly physicalist understanding of the human being is only part of the definition of the self. For Sellars, operating solely within the confines of an epistemological framework that explains the perceptible and imperceptible activities of the human being in terms of the performance of sub-atomic particles at the micro-level unintentionally or, in some cases, intentionally, neglects to perceive the object as a complete whole consisting of its parts. A human being is made up of elements from both the perceptible and imperceptible levels and should be defined by such levels and not only by using elements found at the sub-atomic level.

It is similar to staring at a painting from a very close proximity and not knowing what the painting illustrates. Standing close to the painting does not provide enough information for an individual to conclude what it is a painting of. Unless you are already familiar with the painting this remains true. In order to get a better perspective and a better understanding of what it is you are looking at you should take a few steps back and position yourself in such a way that the entire painting is perceived and not just a small localized area. In this way, you see all the elements at the same time and the way they interact between them and complement each other. The painting is now recognizable. If you still do not know what the painting is specifically, you can at least attain a general understand of what it is. For the scientific realists, if a human being is seen up close, that is, only in terms of the activity between neurons and sub-atomic particles, then the definition of a human being will be confined to this level, which is incorrect. The human being needs to be considered and defined at the perceptible and imperceptible levels. What goes on around the person is also an important aspect in the definition of a human being.

The more a human being is explained and defined in terms of its atomic consistency, the further one is from attaining certain knowledge of what a human being is. All physical objects, including the human being, must be considered at both the micro- and the macro-levels, if a complete understanding is to be attained. The activity at the micro-level must be

used in conjunction with overt behavior and environmental influences in order to receive a complete image of man. The picture becomes recognizable and is known with certainty when all the pieces, at the micro- and macro-level, are viewed together.

Not only will viewing an object as a whole consisting of its parts bring complete and certain knowledge; it also helps attain the meaning of the object. An object viewed in terms of its perceptible and imperceptible elements naturally causes the meaning of the object to be attained, since meaning consists of these entities. Sellars writes, "The plurality I have in mind is not that which concerns the distinction between the fact finding, the ethical, the aesthetic, the logical, the religion, and other aspects of experience, for these are but aspects of one complex picture which is to be grasped reflectively as a whole" (Sellars [1963], p. 4).

Meaning does not exist in the physical object. It is not abstracted from the sensory contents of an object. The philosophical theory of abstraction is a theory Sellars and the scientific realists want to avoid. Meaning exists in the mind of the individual, not in a physical object, because physical objects do not exist; only their sensory contents do.

The meaning of an object also refers to the interaction of the sensory contents as it relates to itself and to other objects or concepts, including the subject of perception in its surrounding environment as a type of, or like, something. "When we state the meaning of a term, we are not relating the term to some abstract entity; we are merely characterizing the term as one that plays the same role as some other term that our audience, in virtue of its knowledge of the base language, already understands" (Delaney *et al.* [1977], p. 52). This relationship is verified using the propositional form of an object. When a concept is "stored" in the brain, then the individual has an intimate understanding of its meaning. The concept of a red rose, for example, is stored in the category flowers. So when a person perceives a flower in the future, the mind of the individual or the self refers to a conceptual knowledge of a flower in order to recognize and understand what he or she perceives.

However, we begin to notice problems with Sellars' understanding of the self. He wants to define the self in non-reductionist terms. For the scientific realists, the self is a mind. The mind grows and changes with the growth and changes of the physical body. External events do influence what we become, but they do not define who we are. Knowledge of the self is constantly changing and growing, the more we learn. The self when I was five years old is the same self I am now. What changes is my knowledge of who I am. I know more about myself than I did when I was five. Scientific realism confuses knowledge of what we become with knowledge of who we are.

The self as a mind is not a spiritual entity. For the scientific realists, the mind develops in unison with the body of the human being. "It is a set of dispositions which grow and develop with the organism to further its adaptation" (Delaney [1969], p. 196). The mind is the "I" in a first-person statement. Its existence depends on the brain, since it controls the physical and mental behavior of a human being using its causal powers, which come in the form of thoughts. For the scientific realists, the mind or self is a development of the cognitive activities of thinking, reflecting, wondering, and inferring. Sellars describes the mind in this way: "It is, therefore, a development within the framework of persons, and it would be incorrect to construe the manifest image in such a way that persons are composite objects" (Delaney *et al.* [1977], p. 11).

The mind allows the individual to act freely and to choose freely. The scientific realists claim not to have a problem with determinism. The awareness of the intimate goings-on within the brain of the individual is the consciousness of the individual. The mind is only a name for the functions of mental activity and consciousness is the awareness of such activity. Sellars and the scientific realists characterize their epistemology as compatibilistic, which means the ability to act is verified by the ability to will that act. The mind verifies both the ability and the will to act. Thoughts are used to control the physical and mental behavior of an individual. They do not escape being reduced to electro-chemical impulses. Even though the scientific realists consider thoughts as theoretical entities, they nonetheless have neurological origins.

From this compatibilistic notion comes the intimate knowledge of the inner processes of the self. The mind is aware of the fact that the subject is the one in control of all mental and physical behavior. It is through this cognitive framework that an image of the self is created. This self-awareness is labelled as the manifest-image by scientific realism (Castaneda [1975], p. 58).

The scientific realists understand consciousness as the individual's personal experience of the world, *i.e.* the awareness of the surrounding environment as well as awareness of the self as the subject of experience. "The point to bear in mind is that consciousness is not more than its content, and is obviously non-substantial. It is not stuff, but a flux. For this reason I have been accustomed to call it a variant" (Delaney *et al.* [1977], p. 200). Consciousness, or self-awareness, is an intimate experience. By being conscious, one is able to experience the goings-on of the private mental acts that no one has access to. It also helps the individual act freely and willfully within the world. Consciousness is not a thing. It is a state of the awareness concerning an object of thought. It is the awareness of

the participation between mental states and physical states. The mind is a functional product of the mental activity. The mind is just a name given to refer to these functions.

The scientific realists do not imply a dualist approach to understanding the self. Instead, they make reference to the same thing — that is, the brain —, but looking at it from two perspectives. There is looking at the brain from the outside, which is what neurologists do, and there is looking at the brain from the inside, which is what consciousness does.

Although he does not specifically locate consciousness in the brain, Sellars does say its origin is in the neural structure. He believes that when the brain ceases to function, consciousness disappears. The mind, or consciousness, is energy resulting from the physical processes of the brain. It is not an emergent property. The scientific realists avoid the philosophical notion of emergence and would rather have it that the activity of the properties at the macro-level behave similarly to the activity at the micro-level. And the mind is used to grasp the pattern in all physical objects.

Sellars does say there is an intelligible design or pattern to matter. He believes that matter is discovered to be active, dynamic, relational, and self-organizing. Within matter, energy resides. This energy takes the form of being. It is the being within matter that makes it able to exist by itself and to be independent of any other source. This understanding of being is similar to essence. The scientific realists' understanding of being is manifold and not one.

Likewise, within the brain, there is an energy promoting the existentially independent nature of the mind or self. Matter has immanent existence and intrinsic endurance (Delaney [1969], p. 179). The being of matter is not something that can be abstracted. Intrinsic endurance is not dependent on, derived from, or contributing to, another type of endurance to sustain itself. It is independent and self-sustaining. The individual grasps the pattern or the being of an object in order to know and understand it. For Sellars, the being resides within each object and so is many things. Sellars says being is relational to each thing it resides in.

Sellars' understanding of the notion of being can be compared to that of the theologians or philosophers. It is comparable to something that permeates all things. It is this power that an individual recognizes in physical objects and within himself.

With the addition of scientific discovery, Sellars uses philosophy and theology to attain a better understanding of who we are. Scientific realism is an example of how transdisciplinary studies can be used to better understand life's most challenging questions such as "Who am I?" Although scientific realism is not infallible, it demonstrates the potential

of theologians and philosophers to work side by side with scientists. For Sellars, theology and philosophy need scientific discovery in order to attain a more comprehensive definition of man. Hopefully, this effort will foster more dialogue between the scientists, theologians, and philosophers.

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*Interview*



*Entretien*



# The International Congresses of Transdisciplinarity. Their Importance for the Emergence of a Transdisciplinary Methodology\*

BASARAB NICOLESCU

University Paris 6, France  
and Babeş-Bolyai University, Cluj-Napoca, Romania

**An interview given in December 2006 to**

**AUGUSTA THEREZA DE ALVARENGA**

Faculty of Public Health, University of Sao Paulo, Brazil

*When did you begin to be interested in transdisciplinary thought?*

Since my adolescence, even though the word *transdisciplinarity* had not yet been coined. My first book, published in Romania in 1968, just a few months before my definitive departure for France — *Ion Barbu, The Cosmology of Joc Secund*<sup>1</sup>, Fiction Publishing House, Bucharest, 1968 —, was devoted to the relationships between mathematics and poetry in the work of a great Romanian poet who signed his poems using the pseudonym Ion Barbu, but was also known for being a mathematician of international reputation, under his actual name, Dan Barbilian.

*How did you make this trajectory?*

In a very natural way, I could even say “innately”. As a student, I had solid knowledge in philosophy. My interest was concentrated on Schopenhauer and Hegel. Literature impassioned me, even if mathematics remained the center of my passions. I also had from very early on,

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\* Translation from French by Karen-Claire Voss.

1. Literally, “Second Game”.

from the time I was around six years of age, a well-developed orthodox Christian education, with a priest who was one of the greatest Romanian theologians, Father Galeriu. He gave me the taste for apophatic thought (particularly, Pseudo-Dionysus, Gregory of Nyssa, and Gregory Palamas), a taste which was developed by my practice of quantum physics and which was a fundamental component of the methodology of transdisciplinarity that I worked out after my arrival in France. Quantum physics was, for me, a place of conciliation between all its apparently contradictory concerns. My major references in the philosophy of quantum physics and mathematics were — and still are — Werner Heisenberg, Wolfgang Pauli, Niels Bohr, and Kurt Gödel.

*When and how did you propose a transdisciplinary methodology based on three pillars: that of complexity, that of the various levels of reality, and that of the logic of the included middle?*

I did not propose it: I worked it out. I formulated the methodology of transdisciplinarity in a series of articles published in the French review *3<sup>rd</sup> Millennium* (the old series), which was included in my first book published in France *Nous, la particule et le monde*, Éditions Le Mail, Paris, 1985 (2<sup>nd</sup> edition: Rocher, Collection « Transdisciplinarité », Monaco, 2002; translation in Portuguese (by Isabel Debot): *Nós, a particular e o universo*, Coleção „Ciência e Consciência“, Esquilo, Lisbon, 2005).

*How was this process carried out?*

Very slowly. It seemed important to me to formulate a methodology, because in the absence of this methodology, transdisciplinarity is only frivolous talk, a momentary fashion. But this methodology should be an open, not dogmatic one. This is why it seemed crucial to me that transdisciplinarity should be defined via its methodology. A single methodology, which is the logos of method, is compatible with a great number of different methods. In other words, transdisciplinarity is based on a single methodology, but there can be variations of transdisciplinarity. This point is not generally understood even today; because even educated people confuse methodology and methods. My approach to thought is built on the example of the methodology of modern science: the one and only methodology, that formulated by Galileo, Newton and Kepler, that proved to be compatible with extremely different theories, like, for example, traditional mechanics (the two theories of relativity of Einstein included) and quantum mechanics. Another essential difficulty in the formulation of the methodology of transdisciplinarity is related to the irreducible presence of the Subject in transdisciplinarity. This is why it was clear for me that the methodology of modern science, founded on the exclusion of

the Subject, is not valid in the field of transdisciplinarity. The unification between hard (exact) sciences and soft (human) sciences cannot be accomplished using the methodology of modern science. A new methodology was necessary and, in a few years's time, I adhered to this formulation.

The first axiom (or "postulate", or "pillar", according to popular terminology), that concerning the levels of Reality, has seemed obvious to me since 1970, from my own practice of quantum physics. But the idea did not exist in the then scientific corpus and I hesitated to publish it. Fortunately, during my post-doctoral training course at the Lawrence Berkeley Laboratory (1976-1977), I was in contact with Geoffrey Chew, the founder of the bootstrap theory, and also with Henry Stapp, who both encouraged me to publish it. I finally articulated the first axiom in an article published in *3<sup>rd</sup> Millennium*, No. 1, Paris, March-April 1982. Much later, in 1998, I learned that Werner Heisenberg had also advanced a formulation of the concept of "level of Reality" (Werner Heisenberg, *Philosophy — the manuscript of 1942* [translation from German and introduction by Catherine Chevalley], Paris, Threshold, 1998; first German edition: *Ordnung der Wirklichkeit*, Munich, R. Piper GmbH & KG, 1989; published first in W. Blum, H.P. Dürr, and H. Rechenberg [eds.], *W. Heisenbergs Gesammelte Werke, Flight*. Ci: Physik und Erkenntnis, 1927-1955, Munich, R. Piper GmbH & KG, 1984, pp. 218-306). The third axiom, that concerning complexity, was announced at the same time, in my book *Nous, la particule et le monde*. There are certainly a great many definitions of complexity, practically all incompatible with the concept of level of Reality. The only one appropriate for transdisciplinarity is that of Edgar Morin.

Paradoxically, it is the second axiom, that concerning the logic of the included middle, that was the most difficult to formulate. Of course, I had been working closely with Stéphane Lupasco since 1969. I also knew Aristotle's considerations and especially Hegel's who applied this logic in his philosophy of the spirit. But it was obvious for me that a strictly formal logic was unsuited to transdisciplinarity, because it is very poor and is limited to solving theoretical paradoxes. Moreover, Lupasco's logic of the included middle did not take into account the existence of the levels of Reality, but it still had the capacity to be a true philosophy. This is why I extended and generalized Lupasco's logic by introducing the levels of Reality of the Subject and the levels of Reality of the Object. The result was published, with the encouragement of Lupasco himself, in *Nous, la particule et le monde*. Over the last few years, Joseph Brenner has showed all the richness of such a logic in his study of the processes of Reality. Through this methodology, transdisciplinarity succeeds in becoming a *tour de force* that joins together ontology (the first axiom), logic (the second axiom), and epistemology (the third axiom).

I must say in all modesty (since I was the initiator or organizer of the majority of congresses) that I have played a major role in the emergence of an international community of transdisciplinary researchers, gathered around an already existing methodology of transdisciplinarity. In this respect, one can certainly speak of a methodological consolidation. But it is not correct to speak of an “emergence” of a methodology during these congresses, because this methodology existed already. It is true that I chose, for tactical considerations, to show this methodology gradually, the climactic point being located at the First World Congress of Transdisciplinarity and the Congress of Locarno. It should not be forgotten that the atmosphere in the academic milieu of the time was very unfavorable to transdisciplinarity and it was necessary to proceed with courage, but also with prudence.

*What do you think of the proposition that the three pillars considered in the official documents of the Congresses should be of fundamental importance for the characterization of a methodology of transdisciplinarity? What are the possibilities and the challenges that this proposition brings, on the one hand, and the limits that it presents, on the other hand?*

I have already answered the question concerning the importance of these congresses. One of the limits of the transdisciplinary methodology is that it does not allow to do science on the technical level: the methodology of science is largely enough for that. In this respect, the transdisciplinary methodology and the scientific methodology are complementary. It may be, nevertheless, that the transdisciplinary methodology leads to great scientific discoveries, especially in the study of consciousness.

The essential limit of the transdisciplinary methodology is that it does not constitute a spiritual way in itself. It is here that potentially huge deviations of transdisciplinarity reside. I notice an occultist temptation here and there, which is extremely harmful and must be fought by transdisciplinary researchers. One should not forget that even if the transdisciplinary methodology is very different from the methodology of science, it nevertheless has the scientific spirit in its center.

*Certain authors, like the French Patrick Paul and the Brazilian Amâncio Friaça, claim the need of introducing a fourth pillar of transdisciplinarity, beside the three already known: the paradox<sup>2</sup> and the vacuum<sup>3</sup>, respectively. Others defend the need for non-centrality in the “logic of the third*

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2. *Formation of the Subject and Transdisciplinarity: A History of Professional Life and the Imaginal*, Paris, L'Harmattan, 2003, p. 401.

3. *O vácuo e o espaço transdisciplinar*, in: *Educação e transdisciplinaridade*, III, Sao Paulo, Triom, 2005, pp. 439-451.

*included”, but in various non-traditional logics (Message of Vila Velha/Vitória, Brazil, of the Second World Congress of Transdisciplinarity). What do you think?*

It is not necessary to introduce a fourth axiom, if it can be derived from the first three. The paradox and the vacuum are a consequence of the first three axioms. It is important to keep a minimum of axioms in the methodology of transdisciplinarity: if it leads to tautologies, one obtains a result of what one puts inside. Of course, the number three is neither magic, nor sacred. If it is necessary, one can introduce a new axiom, but, for the moment, it is not a necessity. I have already answered the question of the “non-centrality” of the logic of the included middle. It is a question of confusion: the logic of transdisciplinarity, while including a formal logic, is, at the same time, a philosophy, the philosophy of the included middle.

*In which of the Congresses on Transdisciplinarity have you taken part?*

I took part in all of them:

- the 1986 Venice Conference on “Science and the Boundaries of Knowledge”;
- the 1991 Congress on “Science and Tradition: Transdisciplinary Prospects for the 21<sup>st</sup> Century”;
- the 1994 First World Congress of Transdisciplinarity;
- the 1997 International Congress of Transdisciplinarity “Which University for Tomorrow?”;
- the 2005 Second World Congress of Transdisciplinarity.

*Which is your perception of the importance of each congress in which you have taken part for the emergence of a transdisciplinary thought based on the three pillars?*

- the Venice Conference on “Science and the Boundaries of Knowledge”: preparation of the emergence of a community;
- the Congress on “Science and Tradition: Transdisciplinary Prospects for the 21<sup>st</sup> Century”: preparation of the First World Congress;
- the First World Congress of Transdisciplinarity: the core of the community is formed;
- the International Congress of Locarno: “Which University for Tomorrow?”: it was attended by educators and students of the member states of UNESCO, in 1997;
- the Second World Congress of Transdisciplinarity: with the participation of the international community and a large number of transdisciplinary researchers in Brazil.

*We state, in an article, that one can think that such Congresses support the constitution of what we could designate as a “community of transdisciplinary thinkers” (to use Thomas Kuhn’s terminology). This is because we consider that many of those who took part in these congresses became followers and started to defend the idea that this proposal of a transdisciplinary methodology based on three pillars should be employed, in reflections on transdisciplinarity, like a basic diagram, or even like a paradigm (also in the design of T. Kuhn), because it is formed with the best methodological strategy available. What do you think of this assumption?*

I completely agree with this idea of a “community of transdisciplinary thinkers”. But I have important reservations concerning the word *followers*, with its connotation of the New Age. It is not necessary that transdisciplinarity give rise to any kind of guru. I also have reservations concerning the word *paradigm*, which was formulated by Thomas Kuhn in a precise context — that of science — and should not be used in other contexts.

*In your opinion, which is the strong point (or points) of this (these) same Congress(es) in which you have participated?*

- the Venice Conference on “Science and the Boundaries of Knowledge”: the word *transdisciplinarity* was mentioned for the first time in an institutional document;
- the Congress on Congress “Science and Tradition: transdisciplinary prospects for the 21<sup>st</sup> century”: the entry into the transdisciplinary movement of the great poet Roberto Juarroz from Argentina, who also formulated in this context an important expression of the transdisciplinary terminology: the *transdisciplinary attitude*;
- the First World Congress of Transdisciplinarity: the adoption of the *Charter of Transdisciplinarity* which is, to this day still, the most important document of the transdisciplinary movement;
- the International Congress of Locarno “Which University for Tomorrow?”: the formulation of recommendations concerning an education higher than was intended by the UNESCO member states.
- the Second World Congress of Transdisciplinarity: the demonstration of the vitality of the transdisciplinary movement in Brazil.

*And which are the weak point (or points) of this (these) same Congress(es), in your view?*

- the Venice Conference on “Science and the Boundaries of Knowledge”: the conference was restricted to a small number of personalities of the cultural and scientific world;
- the Congress on “Science and Tradition: Transdisciplinary Prospects for the 21<sup>st</sup> Century”: a mixed participation due to the double (and contradictory) patronage by UNESCO and an association of engineers;
- the First World Congress of Transdisciplinarity: no weak point. The organization of this congress was ensured in an exceptional way by the great Portuguese painter Lima de Freitas and benefited from the major intellectual contribution of the President of Portugal, Mario Soares;
- the International Congress of Locarno “Which University for tomorrow?”: no weak point. This congress benefited from the participation of very important personalities, like the Nobel Prize winner Werner Arber and the great architect Mario Botta;
- the Second World Congress of Transdisciplinarity: the document that came out of this congress was retrospectively compared to the *Charter of Transdisciplinarity*. It is too specific to the Brazilian movement and less adapted to the international community.

*In your opinion, what were the important challenges for the development and/or deepening of this proposal for transdisciplinarity, from a methodological, epistemological, and theoretical point of view?*

The challenges are unforeseeable. And the possible deviations are numerous.

*Can you identify some work or author (man or woman, yourself included) already progressing from the theoretical or the methodological/epistemological point of view, that is, toward the point of embarking on transdisciplinarity? If so, could you mention the name of the work and its author (man or woman)? Could you tell us in what sense you consider that this author was making progress? Note: In case there are many authors (men or women) make a list of them, one by one, below.*

I do not like the spirit of such lists. To see which are the important personalities, it is enough to notice which are the books or the articles most quoted in the transdisciplinary literature.

*In many published articles, it is usual that the proposition of this transdisciplinary methodology, based on three pillars, be considered a “paradigm”.*

*If one thinks how the term paradigm was used in Thomas Kuhn's already traditional work Structure of Scientific Revolution, like a kind of "model" in which the problems of investigation are suggested by the paradigm and resolved by it, or accepted as dominant by a given scientific community whose function is to direct all research in a determined field, by furnishing problems and model solutions to a community of practicing scientists, what do you think of the nature and heuristic capacity of this proposition of a "transdisciplinary methodology"? This proposition would (or could) be, in fact, a new paradigm, as Thomas Kuhn's was, presenting itself as a hegemonic approach? Or should it be considered, having in mind the proper complexity of the topic, like one of the possible theoretical-methodological propositions liable to be adopted by its followers and to contribute, with the extant or emerging others, to the study of transdisciplinarity? In the case of understanding it as a paradigm for the study of transdisciplinarity, what is your concept of paradigm?*

I have already answered this question: in my view, one is not able to speak of a "paradigm" linked to transdisciplinarity.

*By way of a final point, we would ask whether you consider it important to add still more comments, in the form of other questions which you consider important on the theme/subject and which we have not mentioned. If so, what would you add and why?*

I thank you for these very intelligent questions.

*Events*

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*Événements*



# **The International Congress “The Dialogue between Science and Religion in the Orthodox World”**

**Bucharest, 24-27 September 2008**

MAGDA STAVINSCHI

Association for the Dialogue Between Science and Theology in Romania  
(ADSTR)

**T**he pan-orthodox Congress “The Dialogue between Science and Religion in the Orthodox World” was dedicated to the dialogue between science and orthodoxy. It was a real success, due to the fact that it was the first one of this kind and also to the intrinsic importance of the talks presented during its proceedings.

Since Romania is recognized for its opening towards other religions and because Orthodoxy offers a particular perspective of the dialogue between science, art, religion, faith, and reason, we discussed a new approach towards it in the transdisciplinary manner.

The meeting occurred in the context of globalization in a new Europe but, simultaneously, of maintaining the particularities of Orthodoxy, especially in South-Eastern Europe.

The Congress was an opportunity for an international debate between science, art, and religion in the Orthodox world.

It was held in Bucharest, with the generous support of the John Templeton Foundation, under the aegis of the Romanian Academy and the Romanian Orthodox Patriarchate. Its main organizers were the Association for the Dialogue between Science and Theology in Romania (ADSTR) and the Institute for Advanced Studies in Science and Orthodoxy (IASSO). The other sponsors were The International Center for Transdisciplinary Research (CIRET) and the Faculty of Orthodox Theology of the Bucharest University.

The Scientific Organization Committee was composed of: Basarab Nicolescu (chairman), Magda Stavinschi, and Adrian Lemeni.

The works of the Congress were held at the Romanian Academy and at the Faculty of Orthodox Theology of the Bucharest University.

The opening of the works was widely spread by the media, due both to the importance of the Congress itself and to the personalities who were present or wished to send their personal messages:

- Prof. Ionel Haiduc, President of the Romanian Academy;
- His Holiness Daniel, Patriarch of the Romanian Orthodox Church; his message was read by His Grace Ciprian Câmpeanu, Assistant-Bishop to the Patriarch;
- Călin Popescu-Tăriceanu, Prime Minister of Romania; his message was read by Adrian Lemeni, counselor for religious affairs;
- Sergiu Nistor, General Secretary of the National Commission of Romania for UNESCO;
- Basarab Nicolescu, honorary member of the Romanian Academy, chairman of the Scientific Committee of the Organization of the Congress.

Scientists and theologians from Bulgaria, France, Georgia, Greece, the Republic of Moldova, Russia, Serbia, the USA and the UK took part in the Congress.

The second evening of the Congress was concluded by two special events.

First, the presence of Mr. Dan Puric, a well-known Romanian actor. Dan Puric is a "mime", a film director, a creator of amazing pantomimes. His plays were acclaimed at the European Cultural Center, but also in Vienna, Novi Sad, Venice, Budapest, Lisbon, New York, Chicago, Toronto, and Montreal. Dan Puric was a member of an Association for Promoting Theatre Artists in Switzerland, being also delegated to educate the towns of French and English language in a program called "The Arts and Humanities as Agents of Social Change". He won the Golden Arena Award for Best One Man Dumb Show. He also won the Special Award at the Festival of Dumb Show at St. Croix, the Award of the Chicago Artist International Program in 1996, the Award for Theatre and Dumb Show in 1997, the UNITER Award in 1999, the Award for Performance in Non- Verbal Theatre, the Great Award of the "Anastasia" Foundation in 2002, the Romanian National Award of UNESCO for the Development of Culture in 2003. Dan Puric was awarded the Order of the Romanian Star in December 2004 and he became honorary shareholder of the National Theatre.

Besides his artistic vocation, Dan Puric is also a strong supporter of Romanian spirituality. This personality, well-known especially by the

Romanian media, attracted a lot of people at his conference: "Art, Science and Religion", followed by the films achieved in the frame of the S.O.R.E. program by Anca Filoteanu, a physicist and producer for TV chains: "The Christian Mind and the Holy Inner Feeling", and "The Christian Artist".

The evening was concluded by the launching of the most recent books among the seventeen published over the last two years in the series "Science and Religion" at the Curtea Veche publishing house. The editors of collection presented this series.

Special attention was given to the book by Robert L. Herrmann, *Sir John Templeton. Supporting Scientific Research for Spiritual Discoveries*, which appeared the very same day when Sir John Templeton died.

The evening was honored by the presence of Eugen Simion and Maya Simionescu, former President and Vice-president, respectively, of the Romanian Academy, who have supported our education and research program, carried under aegis of the John Templeton Foundation ever since its beginning.

The messages presented during the Opening session, the names and CVs of the participants, the abstracts of the papers presented, as well as a few pictures taken during the Congress can be found on the site: [www.adstr.ro/congress2008](http://www.adstr.ro/congress2008).



*Book Reviews*

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*Livres à signaler*



# Abusive Religion and the Excess of Science

## Richard Dawkins, *The God Delusion*, Bantam Press, 2006

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**T**he *God Delusion*, written by the renowned evolutionary biologist Richard Dawkins, was a *New York Times* bestseller during 14 weeks in 2006. One year later, the Curtea Veche Publishing House offered us the first Romanian translation of the book, due to Victor Godeanu.<sup>1</sup> Richard Dawkins is a professor of Public Understanding of Science at the Oxford University and a professional fellow of New College, Oxford. He became famous with his 1976 book *The Selfish Gene*, which popularized the selfish gene theory and introduced the notion of *meme*. In 1982, he published *The Extended Phenotype*, which claimed that the phenotypic effects are not limited to the body of an organism. In 1986, Dawkins published *The Blind Watchmaker*, where he developed a sharp criticism of creationism and of its thesis of an intelligent design.

The basic intent of *The God Delusion* is laid down in the *Preface*: “If this book works as I intend, religious readers who open it will be atheists when they put it down” (p. 5). If I may venture a personal remark right from the beginning, I started reading the book as an atheist and when I finished it, I extended the basic religious criticism that characterizes my formation to Dawkins’ version of atheism. The main reason for this consists in Dawkins’ idea that science can explain everything that theology (or the philosophy of religion) has failed to explain: “Historically, religion aspired to *explain* our own existence and the nature of the universe in which we find ourselves. In this role, it is now completely superseded by science” (p. 347). As we will see, I will try to argue that there is a remainder that absolute rationalism cannot entirely cover or profoundly explain.

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1. Richard Dawkins, *Himera credinței în Dumnezeu* (literally: *The Chimera of the Belief in God*), Curtea Veche Publishing, 2007.

There is an interesting comparison in the second chapter between the religious ethos of the Founding Fathers and the present, post-secularized point of view in America. We might remember that Jefferson or Adams lived in a specific time dominated by the values of Enlightenment — by autonomy and rationality. As Jefferson remarked: “To talk of immaterial existences is to talk of *nothings*. To say that the human soul, angels, god are immaterial is to say they are nothings, or that there is no god, no angels, no soul. I cannot reason otherwise [...] without plunging into the fathomless abyss of dreams and phantasms” (p. 42). He also called the cross an “engine of grief”, noting that “Christianity is the most perverted system that ever shone on man” (p. 43). Benjamin Franklin, in a more concentrated and pragmatic way, reasoned that “lighthouses are more useful than churches” (p. 43). Dawkins has some affinities with Franklin’s utilitarian argument, when he admits that a “medieval cathedral could consume a hundred centuries in its construction, yet was never used as a dwelling, or for any recognizably useful purpose” (p. 164). Coming back to the difference between the Enlightenment values and present-day America, Dawkins points out that “The genie of religious fanaticism is rampant in present-day America, and the Founding Fathers would have been horrified” (p. 41). Why is that? Just two quick quotes: “I don’t know that atheists should be considered as citizens, nor should they be considered patriots. This is one nation under God” [George Bush Sr.] (p. 43); “We should invade their countries, kill their leaders and convert them to Christianity” [Ann Coulter] (p. 288).

I cannot understand how a former American President can make such an uninspired remark that contradicts the Constitutional principle of the separation of powers. As for Ann Coulter, she fits the profile of the “American Talibans”, a group of right-wing fundamentalists who combine religion with imperialism: “The Afghan Taliban and the American Taliban are good examples of what happens when people take their scriptures literally and seriously” (p. 288). Dawkins later criticizes Richard Swinburne, “one of Britain’s leading theologians”. Swinburne tries to reconcile God with the problem of evil and, by extension, with human suffering (Voltaire, Schopenhauer, and Cioran were prominent critics of theodicy). Swinburne’s arguments are cruel, far-fetched and “grotesque”: “Some people badly need to be ill for their own sake. [...] Suppose that one less person had been burnt by the Hiroshima atomic bomb. Then there would have been less opportunity for courage and sympathy...” (p. 64). This endeavor to justify the catastrophes of the 20<sup>th</sup> century or the natural disasters by God’s will is scientifically inconsistent, because it can prove a reminiscence of the logic of magic, that values “curses” and the “divine warnings” and seeks an occult meaning for our “bad conscience”.

Richard Dawkins reviews the arguments for God's existence, some of them belonging to Thomas Aquinas, Anselm, or Pascal. I will not insist on them, because some are well-known, others not very consistent and most are written in the language of scholastic Aristotelian philosophy. I will concentrate instead on the argument from beauty: a "character in Aldous Huxley's novel *Point Counterpoint* proved the existence of God by playing Beethoven's String Quartet no. 15 in A minor (*Heiliger Dankgesang*) on a gramophone". Dawkins makes the point that "Beethoven's late quartets are sublime", but they "do not prove the existence of God; they prove the existence of Beethoven and of Shakespeare" (p. 86). I can understand Dawkins' reasoning explicitly — it is a hard, Cartesian, and mathematical one. But I can also conceive of a system where both statements (Huxley's and Dawkins') are complementary, non-contradictory. Perhaps there is a logic for the mind and one for the soul (Ludwig Klages uses this distinction with great results); which implies that Huxley's argument (*Heiliger Dankgesang* justifies the existence of God) makes sense in a fundamentally affective way. I will add to that list of music transcending the logic of the mind the *Choral Phantasy Op. 80*, the *Piano Sonata Op. 111*, and the *4<sup>th</sup> Piano Concerto in G*.

A central distinction of Dawkins' book is that between creationism and Darwinism: "The creationist 'logic' is always the same. Some natural phenomenon is too statistically improbable, too complex, too beautiful, too awe-inspiring to have come into existence by chance. Design is the only alternative to chance that the authors can imagine. Therefore, a designer must have done it. And science's answer to this faulty logic is also always the same. Design is not the only alternative to chance. Natural selection is a better alternative. Indeed, the design is not a real alternative at all, because it raises an even bigger problem than it solves: who designed the designer?" (p. 121). As we have seen, creationists explain the beauty of a natural phenomenon through an intelligent design, emphasizing the sacred nature of singularity. Dawkins points out that this is a misunderstanding of the "power of *accumulation*" (p. 121). The natural and intuitive question of the origin of the designer (did he design himself? how?) remains unanswered. In a debate with Francis Collins from *Time Magazine* (January 15<sup>th</sup>, 2007), Dawkins elaborates on the basic difference between the idea of an intelligent design and natural selection: "Darwin provided a simpler explanation. His way is a gradual, incremental improvement starting from very simple beginnings and working up step by tiny incremental step to more complexity, more elegance, more adaptive perfection. Each step is not too improbable for us to countenance, but when you add them up cumulatively over millions of years, you get these monsters of improbability, like the human brain and the rain forest."

The debate with creationism takes us to two other decisive theses built by Dawkins. First, he claims that “religious behavior may be a mis-firing, an unfortunate by-product of an underlying psychological propensity which in other circumstances is, or once was, useful” (p. 174). Second, he tries to explain the origin of the moral sense from a Darwinian point of view. Let us go back to the first thesis to review his argument: “Natural selection builds child brains with a tendency to believe whatever their parents and tribal elders tell them. Such trusting obedience is valuable for survival: the analogue of steering by the moon for a moth. But the flip side of trusting obedience is slavish gullibility. The inevitable by-product is vulnerability to infection by mind viruses. For excellent reasons related to Darwinian survival, child brains need to trust parents, and elders whom parents tell them to trust. An automatic consequence is that the truster has no way of distinguishing good advice from bad. The child cannot know that ‘Do not paddle in the crocodile-infested Limpopo’ is good advice, but ‘You must sacrifice a goat at the time of the full moon, otherwise the rains will fail’ is at best a waste of time and goats” (p. 176). In Dawkins’ opinion, children are indoctrinated with religion (a mind virus that will not allow them to reason efficiently or *scientifically*) as well as with essential data that are valuable for their survival. Because children have no critical spirit, so they must obediently accept everything their parents tell them (criticism or disobedience have fatal results), they will take over the religious beliefs of their tutors. This is an important idea of Dawkins and he develops it through the entire book, advocating a liberal education of children (who should not be labeled as “Christians”, “Jews” or “Muslims” just because their parents have those religious convictions) or comparing the belief in God for the adults with the comfort provided for children by an imaginary friend. What I would like to quickly point to is that Dawkins’ thesis explains how religion evolved and not how it originated. It is plausible that fathers indoctrinate children with a life knowledge or ethical wisdom of sorts, so they would benefit from their own experience, but why did they resort to religion themselves and when did that happen? What is the explanation of the birth of religion? This original question takes precedence over that of the evolution of religion.

Dawkins attacks the cliché which describes Darwinian evolution as selfishness incarnated. “There are circumstances — not particularly rare — in which genes ensure their own selfish survival by influencing organisms to behave altruistically. [...] In general, as my late colleague W.D. Hamilton showed, animals tend to care for, defend, share resources with, warn of danger, or otherwise show altruism towards close kin because of the statistical likelihood that kin will share copies of the same genes.

The other main type of altruism for which we have a well worked-out Darwinian rationale is reciprocal altruism (“You scratch my back and I’ll scratch yours”)” (pp. 215-216). The idea that our moral sense is explained by the theory of evolution helps Dawkins dismiss the idea that we derive morality from the Bible: “What I am establishing is that modern morality, wherever else it comes from, does not come from the Bible” (p. 246); “Our morals, whether we are religious or not, come from another source; and that other source, whatever it is, is available to all of us, regardless of religion or lack of it” (p. 255). Personally, I prefer another theory of the origin of the morality, advanced by Nietzsche in the *Genealogy of Morals* (“While all noble morality grows from a triumphant affirmation of itself, slave morality from the outset says no to an ‘outside’, to an ‘other’...”), but this is another discussion.

Let us remind one of Dawkins’ demythologizing episodes from the Bible, adding some philosophical reflections. “God ordered Abraham to make a burnt offering of his longed-for son. Abraham built an altar, put firewood upon it, and trussed Isaac up on top of the wood. His murdering knife was already in his hand when an angel dramatically intervened with the news of a last-minute change of plan: God was only joking after all, ‘tempting’ Abraham, and testing his faith. [...] By the standards of modern morality, this disgraceful story is an example simultaneously of child abuse, bullying in two asymmetrical power relationships, and the first recorded use of the Nuremberg defence: ‘I was only obeying orders’” (p. 242). It is interesting that Kant makes a common sense point of view, in *The Conflict of the Faculties*, that is similar to Dawkins’ version of the story: “That I ought not to kill my good son is quite certain. But that you, this apparition, are God — of that I am not certain, and never can be, not even if this voice rings down to me from (visible) heaven.” Kierkegaard has a different interpretation in *Fear and Trembling*, controversially claiming that there are moments when our theological obligations supersede ethical imperatives: “By his act [Abraham] transcended the whole of ethics and had a higher telos outside, in relation to which he suspended it.”

At this point, I would like to argue what is the remainder of rationalism, the part that science cannot absolutely cover. I will use a bit of Basarab Nicolescu’s thesis of the “open-minded rationality” from the 4<sup>th</sup> Article of the *Charter of Transdisciplinarity*. We should be open-minded towards something else — I will remind three instances of this indicible: inspiration, which changes the quality of time, enthusiasm, understood as a sort of pantheistic excitement with aesthetic value and the *shadow* and the *trace* of the poetic process. Of course, they can all be explained through biochemistry, but this formalization cannot translate their essence. These are the three reasons why I am skeptical towards neo-atheism.



## Review of *Logic in Reality*

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### Introduction

**L**ogic in Reality is the title of a book I have just published (Brenner [2008]), that I believe will be of considerable interest to the readers of *Transdisciplinarity in Science and Religion*, in spite of the fact that there is only one brief reference to transdisciplinary philosophy and no reference to religion at all in it. The reason is that the logic in question is based on the logical system first developed by Stéphane Lupasco (Bucharest, 1900 — Paris, 1988) between the years 1935 and 1980, sometimes called the logic of the included middle and extended by Basarab Nicolescu (Nicolescu [2002]) within the concept of levels of reality. Nicolescu has further defined this logic as one of the “pillars” of his view of transdisciplinarity. It is the logical core of his view of the transcendental Subject and Object and their ontology, in a domain in which many different levels of reality are involved at the same time. Nicolescu has made transdisciplinarity, including its logic, the basis for much of his current practical work and theoretical advances at the interface of science and religion, in connection with the Templeton Foundation and the Metanexus Institute.

What I have done is to take the basic concepts of Lupasco, all written in French in some fifteen books starting with Lupasco’s PhD thesis of 1935 (Lupasco [1973]), and up-date them and relate them to current issues in science and philosophy, as well as logic. The subjects treated by Lupasco that are *not* covered in this book are his theories of consciousness and knowledge, that is, cognitive science, ethics, and religion. Another major facet of Lupasco’s work that is not referred to in *Logic in Reality* is his trenchant analysis of Kant, Hegel, Schopenhauer, and Bergson. The book does, however, provide a comparison of the systems of Hegel and Lupasco, extending Lupasco’s own analysis.

The reader of *Logic in Reality* will however find that I am in disagreement with Lupasco about the nature of affect (*affectivité*) as the sole a-logical component of transcendental being *vs.* becoming. Becoming involves only the components of everyday reality and its “logic of energy”. I feel that Lupasco made a categorial error in insisting, in disagreement with his own theory, on a total disjunction between being and becoming, insufficiently bridged by the idea of some doubtful “one-way” communication between affect, the former, to the latter.

Having made this *caveat*, however, let me emphasize how powerful the system of Lupasco now appears in this re-expression as a basis for evaluating major questions in philosophy left open by the advances in science of the last thirty years, mainly in quantum physics and cosmology, but also in biological science. Thus, *Logic in Reality* is a *transdisciplinary book*, which is both as understandable and as rigorous as I could make it.

### Format and Language

The book is organized into eight Chapters, plus an Introduction and two Appendices, on Classes and Sets and Systems Theory, respectively. There is a very complete Index, but no overall Bibliography, which is unfortunate, as there are a very large number of references, placed at the end of each Chapter. However, most references are to recent articles, books and sources, such as the *Stanford Encyclopedia of Philosophy*, easily accessible *via* the Internet, with the exception of some of Lupasco’s books that are out of print.

With the book now physically in hand, I feel the language and style are clear enough, albeit somewhat repetitive, but the necessity of providing a solid foundation for my thesis required from me at least a minimum coverage of many subjects, in particular the many kinds of standard logics now current. Experts in those fields may find the coverage superficial, but the average reader should be able to focus on its relevance to the overall argument.

Apart from a few Sections in Chapter 2, which lay out the calculus of the LIR (Logic in Reality) system, there are no equations or diagrams of the kind usually associated with books on logic.

### Subjects Covered

In this Section, I will summarize the Chapters briefly and point out the concepts that readers of this review might find of immediate interest.

As pointed out in the Introduction, the title of this book, *Logic in Reality* (LIR) is intended to imply both that the principle of change according to which reality operates is a *logic* embedded in it, *the* logic in reality; and that what logic really *is* involves this same real, physical-metaphysical, but also logical principle. The first objective of this book is, therefore, to construct such a logic of and in reality.

Chapter 1 begins with an informal axiomatic characterization of LIR and some initial indications as to why these axioms have been selected, and its non-classical calculus to be used is introduced. The structure and major components of standard logics are compared with those of LIR, showing which components can and cannot apply to LIR, or their significant reinterpretations that are required. The major groups of logics appear in the following sequence: deductive; paraconsistent; quantum; inductive-probabilistic. The Chapter concludes with a more formal axiomatization based on a model of probabilistic logic. The differences between my logical system *qua* system and that of both classical and non-classical logics are apparent, but the parallels that remain are part of the justification for the consideration of LIR as a logic, against arguments that a logic cannot deal directly with reality. I have thus already drawn the lines of battle with logicians who will refuse *any* change in their notions of what logic is and is not, a battle which, in his lifetime, Lupasco lost.

Chapter 2 discusses LIR as an uninterpreted formal system, including details of the non-classical calculus applied to the logical operations of implication, conjunction, and disjunction. In this theory, standard truth values are replaced by logical values that reflect the state variables of the phenomenon under study in a novel way. In fact, the “reality values” are similar to the values of probability in the non-standard probability theory, which require non-Boolean logics.

Chapter 3 develops LIR as a formal ontology and an interpreted formal system, with definitions of the critical concepts of dynamics, process, and property. Ontological predicates are introduced to construct LIR as a process ontology, or process-ontological model of reality. A LIR approach to the question of being in relation to reality is compared with recent work grounding being in classical logic, and the concept of LIR as a metalogic is discussed.

It is in this Chapter that the major disagreement with Lupasco appears, but its purpose is to insure the reader that it is possible to be both realist and non-reductionist, and a basis for individual conceptions of aesthetics and ethics is not contravened. In fact, the refutation of the thesis of combinatorial logic (Jacquette [2002]) as a satisfactory basis for anything may be an important output of this part of the analysis.

Chapter 4 sets out the critical foundational notion of LIR, namely that its fundamental postulate is based on the existence of energy or, better, its quantum field-theoretic equivalent, as the unique material category. The properties and processes associated with it, as well as its most important formal categories are developed, recognizing that the domain of entities involved is that of all real, physical phenomena, as well as of non-real (imaginary or fictional) entities *qua* their creation. The categorial approach insures that LIR, as an ontological theory, has the necessary correlations to language and inference. The fit between the axioms of LIR and the New Energy Ontology (NEO), defined accordingly, concludes Part I.

My conception of a New Energy Ontology is entirely mine; nothing like this appears in Lupasco's work, although it is clearly implicit in it. My ontological framework, however, in which the key category is that of *Non-Separability*, allows the basic axioms of the Lupasco logic to be placed in relation to current quantum results on the non-separability of quantum entities. This further supports the overall grounding of the system in our best science.

Part II of the book uses LIR and NEO to re-examine problems in a number of philosophical and scientific domains. Chapter 5 is a transition chapter that sets forth the core thesis of LIR and provides views of key philosophical tools necessary for its development. The core thesis is worth reproducing here:

— LIR can demonstrate that the extant domain that the scientific theories in question aim to describe, reality itself, has been misconceived as a reality that follows the principles of classical logic and has been, accordingly, often misrepresented by the classical ontologies importing or embodying these principles;

— The theories currently used to describe the extant domain are themselves based on classical logic; thus, these theories might be compared and reconstructed according to the principles of LIR, that is, their terms analyzed according to the above categories, and rules provided for the formation of the emergent states involved.

Chapter 5 also sets out a two-level framework for analysis showing how the basic dialectics of LIR can be applied to both intra- and inter-level interactions. The task of providing adequate structure to this categorization of reality is undertaken and compared with concepts from the *Gestalt* and catastrophe theory. The ontological recategorization that LIR makes possible leads to the reexamination of some issues in ontology itself. A basis for the links between LIR as metaphysics and LIR as ontology are proposed.

Again, this Chapter goes well beyond Lupasco in its analysis of such sources of endless debate as the analytical/synthetic distinction. In this

respect, showing for example how, *pace* Quine, holism and non-holism can be reconciled without conflation is one of the key examples of the fecundity of the basic concept.

Chapter 6 discusses the relationship between the principles of LIR and metaphysics and its application to the major philosophical issues of causality, determinism, and realism in science. LIR is positioned as a broad system, an axiomatic metaphysics, for talking about both philosophical theories and real-world processes. It is a consequence of the LIR view of the interactions between concepts, ideas, theories etc., as discussed in the book, that the traditional boundaries between disciplines, while they do not disappear, become more permeable, so that logic in reality is *also* a metaphysics. This is a further illustration, albeit still in the area of philosophy, of the book's transdisciplinary aspects.

From the point of view of a position in the history of thought, that Lupasco should have had, I may now have and hopefully Lupasco may have also, it is not inconsequential to have a methodology, in several ways like Nicolescu's transdisciplinary methodology. In its present form, I think, LIR is such a methodology that can be used to unblock stalled debates in which neither side has the "full story".

The Chapter concludes with a brief discussion of the application of LIR to issues in philosophy and epistemology, and the naturalization of phenomenology. This is, of course, where the reader would like to see more about how LIR "plays out" in connection with consciousness and knowledge.

Chapter 7 develops the relation between LIR and modern physics. LIR seems clearly able to clarify issues of complementarity, structural realism and metaphysical relations at macroscopic as well as microscopic scales, and the correspondence of LIR to some current concepts of space-time and cosmology is proposed. These three Chapters suggest a convergence of metaphysics and physics, for which LIR provides a logical bridge.

The final Chapter 8 shows how the fundamental principles of LIR can define emergence and be applied to emergent phenomena at the increasingly complex levels of life and evolution. The book concludes with some speculations about the potential consequences of the applications of LIR in philosophy and science and the proposal of a more challenging role for this extended logic in the development of knowledge. In retrospect, the discussion of evolution and natural selection is too limited, and reference to "what makes biology unique" (Mayr [2004]) would have strengthened the argument.

The Appendices address two areas, one specialized and the other not, in which there is a special relation to Lupasco's work. There have been endless debates about the foundation and purport in mathematics of the Axiom of Choice, and Lupasco's conception (Lupasco [1987]), that

I reproduce in its entirety in Appendix 1, offers a direct derivation from his logic and, accordingly, from physics. Lupasco's conception, if it reaches the proper audience, simply cuts through the debate, here and, as I show, elsewhere, as in many other debates such as that between realists and anti-realists.

Appendix 2 should be required reading by anyone interested in systems and systems science and its history, especially as codified by Ludwig von Bertalanffy (1969) and Heinz von Foerster and their successors. It is curious that Von Bertalanffy and Lupasco were in their most prolific periods at the same time, the early 1960s, which saw the publication of Lupasco's *L'Énergie et la matière vivante* and *L'Énergie et la matière psychique*. Considerable work is now being done, especially by Wolfgang Hofkirchner and his group at the Salzburg University, on the Von Bertalanffy archive. It is to be hoped that Lupasco's *œuvre* also find such support.

## Conclusion

As Nicolescu states on the book's cover, the "revelation" that I may have achieved are transdisciplinary extensions and applications of Lupasco's work to current issues in logic, ontology and science. But I believe the book also suggests applications in areas that might not have been expected from the initial concept of a non-bivalent logic, namely the areas of information and computer science. The reader is urged to look at, for example, the review by Marijuan, who is one of the founders of the Information Science initiative, on the book website. This suggests that the transdisciplinary aspects of the "Lupasco-Brenner" logic are relevant to some of the most important emergent phenomena of today — the information society, or the cybernetic level of reality, identified by Nicolescu some ten to fifteen years ago as "Cyber-Space-Time".

On the other hand, much work remains to be done for Logic in Reality to achieve widespread acceptance. This would be facilitated if, for example, certain recently developed quantum formalisms (Aerts [2003]) were used to provide a more rigorous mathematical description of the real logical values of LIR, which I believe is possible. It is an unfortunate fact that there are no references to actual applications of LIR or Lupasco's original work in either the exact or the social current scientific literature. This means not only that further historical study of Lupasco's thought is required, although that would be eminently rewarding, but also that researchers must somehow see the advantages of LIR to their strategy. This will take further time, but my hope is that transdisciplinarity and this logic will evolve together, with benefits to both.

To the extent that the development of ethics and religion depends on a sound transdisciplinary understanding of the structure of physical reality and its conflicts, *Logic in Reality* can be said to contribute indirectly to a proper appreciation of the role of religion as well as of science. I hope the prospective reader will approach my book with this in mind.

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