EPILOGUE: THE LESSON OF PSEUDO-DIONYSIUS

The mysterious author of a work entitled *The Divine Names* claims that God is inaccessible to human cognition, and that the Divine Names appear to us merely as His shadow. Paradoxically, he devised a name for himself which has successfully concealed his true identity. When the Apostle Paul preached in the Areopagus of Athens, the Greek men of learning listened to him attentively for as long as he spoke of the Unknown God. But as soon as he mentioned the Resurrection, “some mocked: and others said, We will hear thee again of this matter.” Only a few showed an interest in Paul’s teaching. One of them was Dionysius the Areopagite. So much on the subject in the *Acts of the Apostles* (17, 16–34). An unidentified author, most probably a fifth-century monk who called himself Dionysius the Areopagite wrote a few original theological works. It was not so much an appropriation or hiding behind somebody else’s name, rather an act of modesty in line with the custom of the times on the part of this author, who did not want to steal the limelight but instead to endorse what he had written with the authority of someone more widely known. Today we refer to him as Pseudo-Dionysius the Areopagite.

Pseudo-Dionysius was an unusual author. On reading his texts we have mixed feelings. He is terribly “out-of-date,” embroiled in Neoplatonic deliberation, mystical (in fact he coined the word “mysticism”), with an excessive predilection for classifying the Choirs of Angels. It takes a certain amount of patience and a sense of taste to discover in his works theological reflections worthy of a master. And it is to one of his themes that I would like to devote some attention at the end of this book, which has been concerned with the

struggles that have been going on with the most difficult questions that can be
put to the universe.

The word “struggles” seems particularly apt. In the first part of this book we
reviewed a series of heroic attempts to “explain the universe by the universe
itself.” In spite of numerous spectacular successes “on the way” the undertaking
ended in . . . an opening up on further attempts. In the book’s second part these
attempts took the form of speculations on the anthropic principles and an
infinite space of universes. I think that the principal message of that part of the
book is that in the search for answers to ultimate questions it is hard to get away
from infinity. In the third part of the book we considered the philosophical and
teological idea of creation. The question of an ultimate explanation for the
universe was answered, but at the cost of being immersed in the Infinity of God.
And so we have come up against the Mystery, or rather – as we ourselves are part
of the universe – we have let ourselves be overwhelmed by the Mystery. Not
without misgivings or opposition. We have seen how some of us have resisted the
Mystery by invoking lesser mysteries: the brute fact of existence or the intricate
relations between the syntax of language and reality. Letting oneself be over-
whelmed by the Mystery, even with misgivings – that is the problem addressed by
Pseudo-Dionysius the Areopagite.

Pseudo-Dionysius is the most articulate representative in Western Europe of
what is known as negative theology. In the East, from the Greek Fathers of the
Church right up to the theology of contemporary Eastern Orthodox Christianity,
apophatic theology (meaning about the same as negative theology) has been well-
nigh inherent in the religious thinking of Eastern Christendom. The gist of this line
of religious thought is the standpoint that God is so transcendent that effectively He
is unknowable. Every time we try to describe Him, we should attach at least a mental
negation to the epithets we give Him, since He is certainly not as we imagine Him.

Pseudo-Dionysius was not the first to propagate such a view. There had
already been an apophatic tradition in the Eastern Church for a long time. What Pseudo-Dionysius accomplished was to turn it into a system. He was
well-versed in the Neoplatonic system, in which the One is inaccessible to reason;
we have a sort of access to it through its supreme emanations, the Henads. The
whole of reality is a hierarchy of consecutive emanations. Pseudo-Dionysius
replaced emanation, which the early Church firmly repudiated, with creation,
changing the terminology to a more Christian one, putting the Choirs of Angels
into the hierarchical structure, and endowing the whole concept with a strong
mystical accent. According to him God is unknowable, but then our aim is not to
comprehend Him but to be united with Him. Perhaps the reason why the line of
thought Pseudo-Dionysius represented made such a huge impact on the theology
of the West was because its hierarchical system fitted in so well with the love of organisation and classification characteristic of the Middle Ages in the West.

I shall not go into the intricacies of Pseudo-Dionysius’ ideas; instead I shall cite a few sentences from an article on him,¹ which I consider worth a moment’s thought at the end of this book on the search for “ultimate explanations.”

The word “Henads” does not occur in Pseudo-Dionysius’ system, instead there are names which may be attributed to God, such as Goodness, Life, Wisdom. All the time Pseudo-Dionysius insists that the Godhead Itself is beyond all these names, and It may be spoken of only in the categories of supreme negation.

In Its transcendent dimension Divinity is beyond the reach of all assertion whatsoever, to such an extent that it is impossible even to assert Its existence or non-existence.

Pseudo-Dionysius was not denying the existence of God; what he meant was to warn us against using the same language when speaking of God that we use to speak of other things. The later Scholastics would say that our language relating to God is analogous to our ordinary language. Pseudo-Dionysius was more radical. According to him, whenever we say anything about God – even that He exists – we are more wrong than right.

We say that God is the cause of all that exists, that He is the Creator. We are not so much speaking of Him and who He is, but rather who He is with respect to creation.

We speak of the nature of God only apophatically, that is by negating all that we have said.

By means of relational, cataphatic names² it is possible to speak of God, not so much of His nature as of the way He works and of His works.

The mainstream of Western theology did not follow the path set by Pseudo-Dionysius, however, although it never discarded the via negativa as one of the
important paths. The Scholastic struggles with language to describe God were a good exercise preparing the way for the scientific method, but they made Western philosophers and theologians subconsciously confident that by strictly adhering to the rigours of logic they would be able to cross all the barriers. In a certain sense we are in agreement with Pseudo-Dionysius. He was not promoting irrationalism: he was not saying that the truth was whatever anyone wanted it to be, or that it all depended on psychology and social relations, or that “one opinion is as good as another.” He was very far from such claims. All he was saying was that human rationality is limited. And that this reservation was a necessary condition for any human to be truly rational. That is why at the end of this book on the search for “ultimate explanations of the universe” I decided on an encounter with Pseudo-Dionysius the Areopagite.

I do not intend to go into a discussion of the relative merits of the apophatic and cataphatic trends in theology. Banking on an exclusively negative line of thought would no doubt run the risk of bringing everything to a halt; but ignoring it completely would be naïve and an oversimplification. The point is that it is not just a purely theological issue. We will find aspects of the tension between the apophasic and cataphatic styles – toute proportion gardée – in all thinking which reaches beyond the rigid bounds of empiricism. Especially in thinking which endeavours to face up to the task of understanding the universe.

Do we not encounter essentially the same philosophical motives in the reservations the analytical philosophers of language had about the sense of asking why something exists rather than nothing, that made Pseudo-Dionysius claim that the names we ascribe to God are merely attributions for our own ideas of what He in any case is not? Is not calling the existence of anything whatsoever (therefore also of the universe) a “brute fact for which no explanations should be sought” like the notion latent in all of Pseudo-Dionysius’ reflections that the existence of the Unnameable is an “irreducible given,” the grounds for everything else – in other words something of a “brute fact” as well?

Both of these opinions were a result of the same thing: a profound awareness of the most fundamental limitation of human rationality. But there is an important difference between them. The former opinion, the modern view, rules out whatever might be beyond the confirmed bounds of human cognition (in other words, it holds that whatever is beyond those bounds makes no sense). Thus it assumes that reality is geared to our potential for cognition. The latter opinion, represented perhaps somewhat haphazardly by Pseudo-Dionysius, effectively recognises the same limits to human cognition, but has an open attitude to those limits; although our knowledge of what lies beyond them is merely negative (apophatic), nonetheless it is a knowledge. The former opinion disavows the
Mystery, on the strength of its own decree as the criterion of what has a sense and what has no sense; the latter opinion immerses itself in the Mystery. The former fulfils a therapeutic function, eliminating the discomfort of ultimate questions; the latter intensifies that discomfort in order to find a remedy therein (like a vaccine which relies on the injection of viruses to make the vaccinated organism build up its immunity to them).

Pseudo-Dionysius’s strategy, appropriately modified and transferred to the realm of the philosophy of science, has one more advantage in comparison with the contemporary therapeutic measures. In the light of Pseudo-Dionysius’s approach the scientific adventure embarked on by mankind – not only on the quest for ultimate theories but also in the more mundane research – is not a hit-and-miss contest with brute reality, but a true Adventure of Rationality.

This book grew out of a paper I delivered at a symposium dedicated to Ludwig Wittgenstein. This philosopher shares much of the attitude assumed by Pseudo-Dionysius. His *Tractatus Logico-Philosophicus* concludes with the famous thesis that “What we cannot speak about we must pass over in silence.” In contemporary philosophy there are about as many interpretations of Wittgenstein as there were of Pseudo-Dionysius in the Middle Ages. So while refraining from interpretation, I shall conclude by citing two passages from the last propositions of Wittgenstein’s *Tractatus* (with his emphasis marks):

*The sense of the world must lie outside the world. In the world everything is as it is, and everything happens as it does happen: in it no value exists – and if it did exist, it would have no value. If there is any value that does have value, it must lie outside the whole sphere of what happens and is the case. For all that happens and is the case is accidental. What makes it non-accidental cannot lie within the world, since if it did it would itself be accidental. It must lie outside the world.*

(Proposition 6.41)

*It is not how things are in the world that is mystical, but that it exists.*

(Proposition 6.44)

We are collectively driven by a powerful yet not fully explained instinct – to understand. We would like to see everything established, proven, laid bare. We want nothing to remain without rationale, such that would remove all suspicion, all doubt, all questions. The more important an issue, the more we desire to see it
clarified, stripped of all secrets, all shades of grey. Yet this longing for “ultimate explanations” is in itself immune from being the subject of an “ultimate explanation,” for when we try to understand it, we are immediately faced with the following question: what does it mean “to understand”? 
CHAPTER 1


2 Ibid., p. 149.


5 If we stay on the level of methodological reflection, this expression should be understood metaphorically, with no reference intended to the question of God.

CHAPTER 2

1 In a letter to Bentley Newton wrote that the situation could be compared to an attempt to set up an infinite number of needles standing on their tips on the surface of a mirror.


NOTES AND REFERENCES


CHAPTER 3

2 The actual value of the cosmological constant in the real world should be determined by experimental data.
3 All the time we are talking of the dust filled cosmological models, viz. ones with an equation of state \( p = 0 \), where \( p \) is the pressure exerted by the “galactic gas.”
5 We assume that it is a Hamiltonian system confined in a “finite box” and has a finite energy.
NOTES AND REFERENCES

Evolution in the sense of a one-parameter mapping.
In the Lebesgue sense.
More precisely, if it contains two Cauchy global planes isometric with respect to their initial conditions.
But on some additional assumptions relating to the topology of the set of initial data.
Technically: a compact Cauchy plane.

CHAPTER 4

Translation of sentences quoted from p. 373 of Z. Zawirski, “Wieczne powroty światów – Badania historyczno-krytyczne nad doktryną ‘wiecznego powrotu,’” [Eternal Returns of


7 Closed space-like curves also occur in Gödel’s solution.

8 Space-time in Gödel’s solution is geodesically complete.


16 These papers concerned the polarisation of a vacuum in space-times with closed time-like curves.

17 Viz. Cauchy conditions, on the basis of which future history may be deduced.


19 Cf. footnote 14 in this chapter.

20 Or more strictly: no arbitrarily small disturbance of the space-time metric.

21 And monotonically.

22 My wristwatch marks out a periodic function along the time-like curve which is my history, since it shows the same time twice in every 24 h, but it would be enough to fit it
out with a 24-h clock face (or digital clock) and a calendar showing the date to obtain a function which increases at a constant (monotonic) rate.


More precisely, the components of the metric tensor determine the structure of space-time, and at the same time are interpreted as the gravitational field potentials.

CHAPTER 5

1 It is of no consequence that here it is a question of a “retro-prediction.”


6 Ibid., p. 141.

7 Ibid., pp. 142–143. Bondi failed to observe that in a contracting universe it would be possible to prevent equilibrium by assuming a “continuous annihilation of matter.”

8 Ibid., p. 144.

9 Ibid., p. 143.

10 The reasoning is as follows: the square of the curvature of space is a measurable magnitude, e.g. via the dependence of the number of galaxies per unit volume on distance; therefore in line with the steady-state assumption it cannot change with time, while the curvature of space in an expanding universe must depend on time. The only solution to this dilemma is to assume that the curvature of space is zero.

11 Only evolution at an exponential rate gives a steady state.


13 H. Kragh, op. cit.

14 Ibid., p. 193.


17 Quoted after Kragh, op. cit., p. 193.

18 More on this subject in M. Heller, *Granice kosmosu i kosmologii* [The Boundaries of the Cosmos and Cosmology (in Polish)], Warszawa: Scholar, 2005, Chap. 16. See also


H. Kragh, op. cit., p. 343.


H. Kragh, op. cit., p. 373.

Cf. ibid., pp. 358–368.

The philosopher of science interested in the “invalidation” of the steady-state cosmology by the discovery of background radiation should consult T.M. Sierotowicz, *Mikrofalowe promieniowanie tła jako experimentum crucis w kosmologii?* [The Microwave Background Radiation as the Experimentum Crucis in Cosmology? (in Polish)], Kraków: Wydział Filozoficzny Towarzystwa Jezusowego w Krakowie, 1993, where the rivalry between the steady-state and relativistic cosmologies is viewed as a rivalry of research programmes in Lakatos’ sense.


**CHAPTER 6**

The reader will find a straightforward but precise account of the horizon problem in A. Liddle, *An Introduction to Modern Cosmology*, Chichester: John Wiley, 1999, Chap. 12.1.2

For the flatness problem, see ibid., Chap. 12.1.1.

As well as several other problems with which standard cosmology has not been able to cope, which we shall not go into here.

NOTES AND REFERENCES

8 Hawking queried Linde’s argumentation, pointing out that the scheme Linde proposed was not invariant but essentially depended on the resolution of space-time into time and momentary spaces; see S. Hawking, “Cosmology from the Top Down,” Universe or Multiverse? ed. B. Carr, Cambridge: Cambridge University Press, 2007, pp. 91–98.
9 See below, Chap. 9.
10 We should bear in mind that energy density = energy/volume; hence in an increasing volume energy density can only remain constant if energy is accruing.
11 This claim has been put forward by Albrecht and Steinhardt in the article cited.
12 Readers interested in the diverse inflationary models may refer to Inflationary Cosmology, ed. L.F. Abbott, Singapore: So-Young-Pi, World Scientific, 1986, which contains all the original publications on inflation.

CHAPTER 7

2 The energy of the gravitational field is negative, since work has to be performed to separate two pieces of gravitational matter from each other.
Viz. the Riemann metric, which defines the geometry for a given 3-dimensional space. This description is very simplified. In fact what is meant is not the actual value of the wave function, but the square of its module.

Thanks to this the integration is performed over 4-dimensional compact Riemannian spaces, which prevents the integrals from being divergent. Moreover, Hartle and Hawking seem to identify compactness of space with the absence of boundaries. However, these concepts do not overlap: a compact space may or may not have a boundary.


CHAPTER 8

Examples of such relationships are to be found in Chap. 7 of Hermann Bondi’s Cosmology, Cambridge: Cambridge University Press, 1960.

Viz. the inverse of the Hubble constant.

To obtain this result all the magnitudes have to be expressed in units for which the speed of light $c = 1$. This implies $1 \text{s} = 1 \text{cm}$.


All the other cosmological tests work on the same principle. For example, we observe microwave background radiation, therefore we reject all the cosmological models which do not permit this phenomenon.

Lee Smolin wrote in The Life of the Cosmos, Oxford: Oxford University Press, 1997, p. 203: “The strong form [of the anthropic principle] is explicitly a religious rather than a scientific idea. It asserts that the world was created by a god with exactly the right laws so that intelligent life could exist.”

CHAPTER 9


Ibid., p. 93.

Ibid., p. 94.
NOTES AND REFERENCES

4 Ibid., p. 96.
6 Ibid.
9 Ibid. p. 9. My own critique of Smolin’s concept to a large extent follows McCabe’s paper.

CHAPTER 10


CHAPTER 11

NOTES AND REFERENCES

3 A. Gefter, op. cit.
5 Ibid., p. 41.
6 Tegmark reinforces this commonsensical argument by invoking the ergodic property of the distribution of initial conditions: the probability distribution on the set of initial conditions for all possible universes is the same as for diverse domains in a single universe.

CHAPTER 12

1 See, for example, T.F. Bigaj, Non-Locality and Possible Worlds, Frankfurt, Paris &tc.: Ontos Verlag, 2006, p. 69.
2 Ibid., p. 72.
6 We don’t even know whether such a multiverse is a set in the technical sense of the term. There is a danger of it being liable to the same sort of antinomies as “the set of all sub-sets” in Russell’s paradox.
CHAPTER 13


CHAPTER 14

1 *Genesis* was the book’s title in the Greek translation of the Old Testament known as the Septuagint, which was known already to the Jewish philosopher Aristobulus in the second century B.C.

2 Evidence for this comes in the distinctly mnemonic form of the first chapter of *Genesis*.


5 Biblical references in this translation come mainly from the RSV, supplemented by references to the R.C. Knox version. In this passage the R.C. Knox translation, based on the Vulgate, is closer to M. Heller’s wording (except for Pol. *duch* corresponding to spirit/breath in the respective English translations but historically polysemic like the Greek *pneuma* and encompassing both meanings of the two English words), and reads: “Earth was still an empty waste, and darkness hung over the deep; but already, over its waters, stirred the breath of God.” – translator’s note.


7 Ibid., p.4.

The first problem addressed by Timaios in his story are the questions, “what is it that has always existed and never known birth?” and “what is it that is always being born and never exists?” The problem concerns the Platonic distinction between the unchanging Ideas and the material world, which is only a shadow of the world of the Ideas. Even if the primeval chaos had always been in existence, it was but a shadow of the world of the Ideas. The same applies to the existence of the ordered world. However the ordered world carries more of an image of the world of the Ideas, since it was fashioned to resemble the latter, therefore it "exists more" than does chaos.

Interestingly, English versions follow the gender of the Greek noun Logos and use “he/him” with reference to “the Word,” whereas in Polish translations the gender of Słowo (“the Word”) is neuter – translator’s note.


Ibid., IX, 14.

E. McMullin, op. cit, p. 2.

More on the subject in McMullin, op. cit, pp. 11–16.
NOTES AND REFERENCES

2 For more on the “medieval crisis” see M. Heller, Z. Liana, J. Mączka, W. Skoczny, 
Nauki przyrodnicze a teologia: Konflikt i współistnienie [Theology and the Natural 
Sciences: Conflict and Coexistence (in Polish)], Kraków and Tarnów: OBI and Biblos, 
2001, Chaps. 4–6.

3 In Libros Aristotelis De Caelo et Mundo, lib. I, 1, 7, n.6

4 E.g. in the Summa Contra Gentiles, Chaps. 15–33.

5 To denote the concept of contradiction St. Thomas uses the Latin expression repug-
nantia intellectui: “things which are repugnant to the intellect.” The evidence that this 
phrase is synonymous for Thomas with self-contradiction comes in the sentence . . . 
propter repugnantiam intellectuum aliquid non posse fieri, sicut quod non potest fieri ut 
affirmatio et negatio sint simul vera . . . (“that something cannot hold due to ‘repug-
nance of intellects’ [self-contradiction], just as affirmation and negation cannot hold 
true at the same time” – De Aeternitate Mundi, n. 2)

6 Productio rei secundum totam eius substantiam.

7 Non enim ponitur, si creatura semper fuit, ut in aliquo tempore nihil sit, sed ponamus 
quod natura eius talis esset si sibi reliqueretur – De Aeternitate Mundi, n. 7

8 Ibid., n. 8.

CHAPTER 16

1 A. Funkenstein, Theology and the Scientific Imagination from the Middle Ages to 
book presents an excellent study of the links between theology and the 
emergence of the experimental sciences. This chapter is based largely on Funkenstein’s 
Chap. 3.

2 De Usu Partium, after Funkenstein, op. cit., p. 125, footnote 8.

3 The term “contingent” was first used by Alexander of Hales.


5 An expression of this was the famous “Tree of Porphyry,” universally accepted 
throughout the Middle Ages.

6 E. Cassirer, Substance and Function. Einstein’s Theory of Relativity, New York: Dover 
Publications, 1953.

7 R. Hooykaas, Religion and the Rise of Modern Science, Edinburgh: Scottish Academic 

8 G.W. Leibniz, Théodicée. English translation by E.M. Huggard. http://www.gutenber-
g.org/catalog/world/readfile?fk_files=206453&pageno=146

9 More on this subject in my book Uchwycić przemijanie [To Grasp Transience (in 
CHAPTER 17

3 *Principia*, Vol. II, p. 545
4 Ibid.
8 In fact contemporary cosmology is facing the same problem, as we saw in Part I of this book.

CHAPTER 18

2 In the original the sentence reads *Cum Deus calculat et cogitationem exercet, fit mundus.*
3 G.W. Leibniz, *Theodiceé*, English translation by E.M. Huggard
   http://www.gutenberg.org/catalog/world/readfile?fk_files=206453&pageo=43
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7 *Monadologie* 29, trans. Jonathan Bennett
8 *Monadologie* 31, trans. Jonathan Bennett
9 *Monadologie* 32, trans. Jonathan Bennett
NOTES AND REFERENCES

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15 http://www.gutenberg.org/catalog/world/readfile?fk_files=206453&pageno=78
21 Ibid. 4.
22 We may assume that by writing about things that are “coexistent” Leibniz meant “simultaneous.” However in the above quotation he did not want to use the word “simultaneous,” since simultaneity cannot have a sense until it is specified what is meant by “time.” Andrzej Staruszkiewicz and I have published our reading of Leibniz’s polemic with Clarke in “Polemika Leibniza z Clarke’iem w świetle współczesnej fizyki,” [Leibniz’s Polemic with Clarke in the Light of Modern Physics] Wieczność, czas, kosmos [Eternity, Time, Cosmos (in Polish)], Kraków: Znak, 1995, pp. 41–54.
23 For more on this subject, see my book Filozofia i Wszechświat [Philosophy and the Universe (in Polish)], Kraków: Universitas, 2006, especially Part II.
24 Théodicée http://www.gutenberg.org/catalog/world/readfile?fk_files=206453&pageno=82

CHAPTER 19

In the theory of relativity an object’s length depends on the choice of a reference system; so we are not talking about the length of the curve but the possibility of its extension in a strictly defined sense.

It is assumed that no domain has been artificially removed from this space-time. This assumption is of course given a mathematical formulation.

At least that’s what it seemed at the time when the singularity theorems were being formulated. Currently opinions on “what is physically realistic” in very early stages of the universe’s evolution have undergone a significant change (see below).


I have written more extensively on the singularities and the latest research on them in “Cosmological Singularity and the Creation of the Universe,” *Creative Tension*, Philadelphia & London: Templeton Foundation Press, 2003, pp. 79–99.

Which we may do only for the sake of discussion, since it can hardly be assumed that in very dense states of the universe gravitation will not manifest its quantum features.

**CHAPTER 20**


2. We made some preliminary remarks on this subject in Chap. 12.

3. I have written more extensively on this subject in Chap. 3 of my book *Filozofia i Wszechświat* [Philosophy and the Universe (in Polish)], Kraków: Universitas, 2006.


7. Ibid.

**CHAPTER 21**


2. Ibid., p. 28.

Leibniz regards his monadology as the foundation of physics, but in fact it is a purely metaphysical doctrine.


Ibid.

Ibid., 8.


We don’t even have a statement to say that nothing exists, for there is no-one capable of formulating such a statement.

Cf. footnote 19 in the cited article by R.L. Kuhn.

However, we should not forget that mathematics is not just a language; I have written on this subject in Filozofia i Wszechświat [Philosophy and the Universe (in Polish)], Kraków: Universitas, 2006 (see especially Chaps. 5 and 6).


Of course we could define the probability distribution function in the set of all universes (on condition that it exists in that set – see in Chap. 12 Sect. 3) in such a way as to define the probability of the occurrence of an empty world as zero – but that would be begging the question.

H. Eilstein, Biblia w reku ateisty (in Polish), Wydawnictwo IFiS PAN: Warszawa, 2006. The book does not appear to have been published in an English translation up to now (2009).

All the passages cited in this sub-chapter come from pp. 115 to 117 in Eilstein’s book.

**EPILOGUE**


2 The aim of cataphatic theology, the reverse of apophatic theology, is to make a positive statement on God.

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